Tattooed, pierced hackers offer security advice to corporate users. The Internet, page 49

Your line managers can be IT leaders: 10 steps to success. Leadership Series follows page 40.

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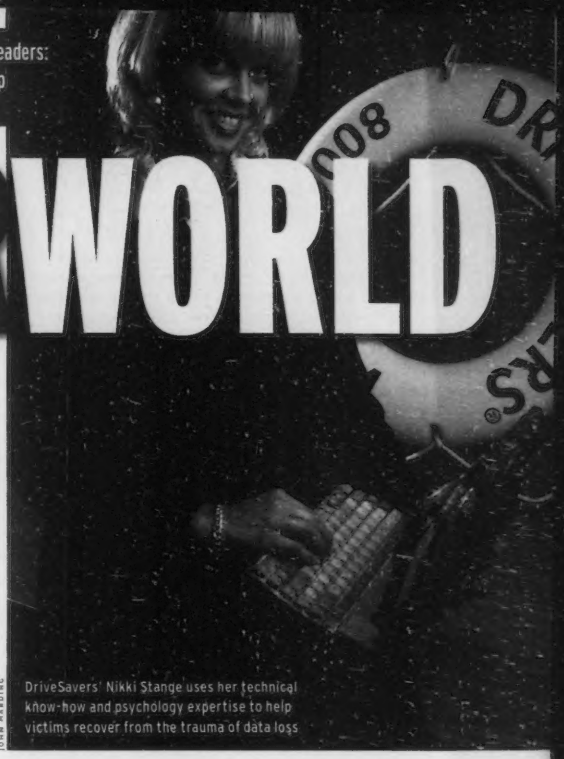

JOHN HARDING

DriveSavers' Nikki Stange uses her technical know-how and psychology expertise to help victims recover from the trauma of data loss

IBM deepens NC commitment

By April Jacobs and Sharon Gaudin

IBM THIS WEEK will announce plans for two new versions of its network computer, *Computerworld* has learned.

The revamped product family is slated to be unveiled at Internet World/Summer '97. Plans include three tiers of devices that give users increasing functionality and more power to run Windows, Java or intranet-based applications, according to sources close to IBM.

Colonial Savings' Frank Manci: **IBM's Network Station will make "Java ready for prime time"**

The IBM Network Station will be renamed the Series 100. The original Network Station offers a 33-MHz PowerPC chip and 8M to 64M bytes of memory. It has a starting price of $649.

Terminal users who move to the baseline Network Station will get a Windows-like graphical user interface, Internet access and support for Java and Windows applications. Windows applications are supported through third-party versions of Windows NT designed to offer server-based, multiuser access.

Two new product lines — the Series 300 and the Series 1000 — will be released later this year. They will be aimed at higher-end Windows-, intranet- and Java-intensive users, the sources said. Both will feature terminal emulation.

IBM will tell Internet World attendees in Chicago to watch for product rollouts in the third quarter.

IBM, page 116

Backs to be scratched, logs to be rolled. In Washington, Congress is mulling a **stack of bills** whose passage would affect every facet of **information technology** — from encryption to **spam** to the **year 2000** to **'net taxation.** We go **inside the beltway** to examine the docket and handicap each bill's chances.

In Depth, page 92

Counselor soothes data crash victims

By Kim S. Nash

A PSYCHOLOGY DEGREE and two years working on a suicide hot line have prepared Nikki Stange for just about any fit a user can pitch — even the guy who ranted for 35 minutes straight after he lost some critical work in a hard-drive crash.

Stange, 35, is a data crisis counselor at a California data recovery firm.

She spends about five hours per day on the phone with people who have just experienced a data disaster. The distraught callers have lost important data to failed hard disks, laptops that have been run over, fires, floods and just plain human error. A lot of those people are steaming mad.

"When someone's doing a lot of [anger] projection, it's a good indicator that what's really going on is anger toward self," said Stange, a counselor at DriveSavers, Inc. in Novato, Calif.

The ranting man, for exam-

Data crises, page 28

Integration tools unite NT, Unix systems

▶ *Government opens door to Microsoft OS*

By Jaikumar Vijayan and Sharon Machlis

A SLEW OF integration technologies is opening a new front in Microsoft Corp.'s relentless battle to drive Windows NT deep into the Unix heartland.

And it may help the company crack the largest Unix bastion of all — the federal government.

In the past few months, several vendors have delivered software and tools that let Unix shops quickly develop and deploy applications into either environment.

These new tools let users access or run the same applications and use the same data on both platforms.

This capability has been available for integrating Windows, DOS and Unix systems. But it is only now becoming available on Windows NT.

The players include Softway Systems, Inc., Mortice Kern Systems, Inc., Bristol Technology, Inc., DataFocus, Inc. and Insignia Solutions, Inc.

"Users are screaming for easy

NT/Unix, page 16

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Vendor hands out 20,000 copies of its management framework. Page 12

UP FRONT

Sour apples

Every time this or any other computer publication prints a cross word about Apple, the flame mails roll in from the Apple faithful scoring us for our ignorance and myopia. Participants in Apple newsgroups have seen the same kind of missives directed at the Macintosh nonbelievers. Often the messages are insulting and demeaning.

That attitude is working against Apple at just the time the company can least afford it. Like it or not, Macintosh enthusiasts have developed a bit of a reputation as crybabies. Many of the protests you see in print and online can be summed up thusly: "You don't understand the Macintosh, and therefore, you are an idiot." Certainly those people are entitled to their opinions, but if their objective is to spread the word about their favorite computer, I suggest they're going about it the wrong way.

User fervor has long been a strong point for the Macintosh. But when passion crosses over into arrogance, it only contributes to Apple's problems. You can get away with being arrogant when you have market dominance. But with Apple's share of new desktop computer sales now less than 5%, a more conciliatory tack is needed.

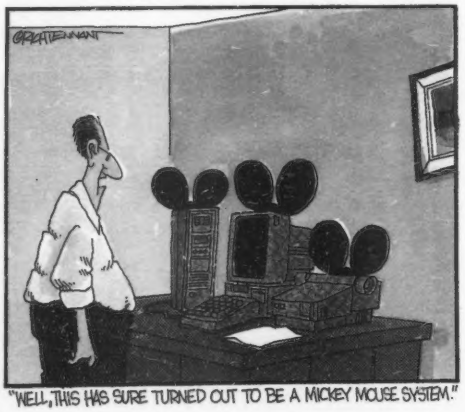
Most of us regard a computer as a tool, not as a lifestyle proposition.

Strangely, Apple has condoned this behavior for years through the activities of a few of its employee "evangelists," who promote semiorganized letter-writing campaigns. While spreading the word is a laudable goal, I'm not sure the evangelists know how grating this holier-than-thou attitude can be to the general computing community. Most of us regard a computer as a tool, not as a lifestyle proposition. To be labeled a fool because we choose one operating system to write letters over another doesn't exactly bond us with the name-caller.

The operating system wars were over a long time ago. The Macintosh is a niche product. The Apple faithful need to understand that and work at spreading a positive message, not antagonizing the prospective customers whom the company so badly needs.

Paul Gillin, *Editor*
Internet: *paul_gillin@cw.com*

THE FIFTH WAVE
BY RICH TENNANT



"WELL, THIS HAS SURE TURNED OUT TO BE A MICKEY MOUSE SYSTEM."

E-mail Rich Tennant at theswave@tiac.net

Free training lures recruits

▸ *Placement agencies to job seekers: Send in a resume, learn the latest skills*

By Julia King

LOOKING FOR free skills training in the hottest information technologies?

In the time it takes to dash off a registration form or send in a resume, that training can be yours courtesy of a growing number of information systems staffing firms and placement agencies.

At Milwaukee-based Manpower, Inc. (*www.manpower.com*), free Internet-based training in JavaScript and LiveWire is available to any IS professional who sends in a resume.

And certification training in Microsoft Corp. and Novell, Inc. networking technologies is available free to any contractor who registers with 1-800 Network (*www.1800network.com*), a technical staffing firm in Boston.

Where the contracting jobs are

- Visual Basic
- Microsoft Access
- PowerBuilder
- Oracle
- Cobol
- C and C++

Where they aren't

- FoxPro
- Clipper
- Smalltalk

Source: The Real Rate Survey Report for July 1997, Technion Books

FREE CLASSES

Still other consulting firms are packing off their hourly contractors to free classes in everything from Lotus Notes applications development to Oracle Corp. database technology.

"For us, it's a key part of retention and recruitment," explained Gregg Scileppi, executive director at RHI Consulting, Inc. (*www.rhic.com*), an IS contracting firm in Menlo Park, Calif.

Officials at other firms said they view their investment in contractors' continuing education as a cost of doing business. Better-trained contractors work to increase customer satisfaction, which in turn means repeat business, noted Monique Ucelac, a technical recruiter at 1-800 Network's office in Southfield, Mich.

For consultants, the training represents a savings of thousands of dollars in out-of-pocket education expenses, plus a way to stay current with ever-changing technologies (see chart above) without taking time off from work.

Tom Hammons, a systems developer in Columbus, Ohio, figures he has received about $10,000 worth of advanced technical training since he joined RHI a year ago from an IS job in the banking industry.

"With the bank, I'd maybe get one certification class a year. At RHI, I've already gotten three to four times that," Hammons said.

"I have an upcoming Internet/intranet project at a utility company, and RHI's response has been to send me to certified training in Internet development so I can go right into the project," Hammons said.

"This is quite a surprise. I didn't expect this level of training," especially with no strings attached, he said. "There are no stay-on contracts, and I can leave anytime I want."

However, Hammons was part of a pilot project. RHI now requires contractors who receive training to sign stay-on contracts that range in length from six months to a year, Scileppi said.

CD-ROM TRAINING

Bernard Hair, a New York-based contractor at Manpower, Inc., spends three to four evenings a week training in Windows NT. He uses CD-ROMs furnished to him by Manpower.

Most of RHI's training is self-paced and delivered on CD-ROM, although the company also sends consultants to classroom-based training.

"Part of the reason for taking this [temporary] position [through Manpower] was to get NT experience under my belt," Hair said. "If I get certified, that will be an added advantage. I would have spent thousands of dollars trying to duplicate this training," Hair said.

The average information technology consultant earns more than $100,000 per year and takes four to eight weeks off per year, according to "The Information Elite" by Dominique S. Black and Richard S. C. Andreini.

Now Manpower is giving away training to contractors who add their resumes to its database. Contractors who send their resumes to the company's Web site receive an electronic reply, including a password to download $1,000 worth of courseware for JavaScript and LiveWire. □

Correction

In the story "Retailers dump big iron for client/server" in the June 30 issue of *Computerworld*, a reporting error misidentified Patty Dill, director of future systems at Nash Finch Co.

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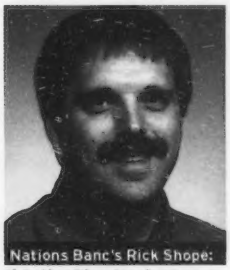
- **CHECK OUT our RealAudio interview with Borland President and CEO Del Yocam and Zack Urlocker, vice president of product development. The pair this week met with users at a conference in Nashville as they aimed to chart a new course for their troubled company.**
  www.computerworld.com/cbc/
- **WHILE YOU TRY to cope with the heat, cool off by visiting CW Antarctica. A new issue appears on Wednesday.**
  www.computerworld.com

NT directory, synchronization top user wish list

By Laura DiDio and April Jacobs

ON THE EVE of Microsoft Corp.'s Windows Platform Briefing this week — the latest in an ongoing series of technical and marketing conferences — what's left to say about Windows NT and Windows 98 futures?

Plenty.



Nations Banc's Rick Shope: **If Active Directory's synchronization doesn't work, "I just don't deploy NT 5.0"**

A dozen Fortune 1,000 users told *Computerworld* that still at the top of their wish lists are fully working directory synchronization capabilities; interoperability with rival directory services platforms such as Novell, Inc.'s Novell Directory Services; and backward compatibility with the Windows 95 platform and 16-bit applications.

"The Active Directory's synchronization mechanism has to work. It's the crux of the entire directory. If it doesn't [work], I just don't deploy NT 5.0," said Rick Shope, manager of PC planning and technology at Nations Banc-CRT, a division of NationsBank Corp. in Chicago. Without synchronization, network operations would be unreliable, he said.

Jeff Dazell, LAN administrator for network services at Dana Corp., called flawed synchronization "a showstopper."

"I'd rather Microsoft hold back on NT 5.0 until 1999 than ship it sooner and take five service packs to fix the bugs. I don't want to be the guinea pig," Dazell said.

Shope and Jon Oltsik, an analyst at Forrester Research, Inc. in Cambridge, Mass., also voiced concern that Windows NT 5.0 is a "total rewrite" of the underlying operating system kernel.

"On the plus side, NT 5.0 promises [to be] a true TCP/IP-based operating system and gets rid of the overhead and broadcast storms that make Windows NT's wide-area links problematic," Shope said.

The downside? A new kernel could create instability, because Windows NT 5.0 will contain first-time versions of many new features. "Microsoft doesn't often ship bug-free software the first time," Oltsik said.

Corporate Windows 95 users said they want Microsoft to continue to support the platform, particularly because so many have spent immense amounts of time and money transitioning to it. Microsoft two weeks ago said it will position Windows 95 for the home and small business markets and is encouraging Windows 95 users to move to NT on the desktop.

Some also see Windows 95 as a smoother transition between Windows 3.x and Windows NT — an idea supported heavily by Stamford, Conn.-based consultancy Gartner Group, Inc., which recommends it for most desktop users.

Others said they want to see Windows 98, also called Memphis, feature better security and multitasking. For example, Larry Garden, technical operations manager at Brewers Retail, Inc. in Mississauga, Ontario, said he abandoned Windows 95 in favor of Windows NT Workstation 4.0, because the former lacked advanced security and multitasking abilities.

NEW DEMOS

At briefings this week for the press and analysts, Microsoft executives will demonstrate the forthcoming features in the Windows NT 5.0 and Windows 98 platforms and will emphasize the business benefit to end users and third-party developers.

One demonstration will show how the Active Directory more easily lets users locate network applications and resources.

It will illustrate how Active Directory objects can be used to log on to an Windows NT 5.0 network and to enable a third-party human resources application to control access to the building, said a source who requested anonymity. Another demonstration will highlight the Active Directory's ability to give independent software vendors a single repository to store objects required for various applications, the source said.

Mike Nash, Microsoft's group director for Windows NT, said Microsoft will advise migration to Windows 98 for those companies with older hardware and those that need support for legacy drivers.

Overall though, users and analysts predict hype will outweigh substance at the Windows Platform Briefing.

"Microsoft is using this conference to bait us and keep us on the hook until the product catches up with the hype. But I'm confident they'll deliver on the promises — eventually," said Gary Lipson, a senior network manager at Phoenix Home Life Mutual Insurance Co. in Enfield, Conn.

"Microsoft is trying to freeze the market and keep its name in the news. It has nothing really new to report," Oltsik said.

Lipson, who was briefed last week on Windows NT 5.0 and the Active Directory, said he liked what he saw. He cited the lack of interoperability between the Windows 95 and Windows NT platforms as the issue he most wants to see resolved.

"When problems occur, I feel like I'm a Ping-Pong ball for Microsoft, Novell and Compaq. I expect Windows NT 5.0 and Windows 98 to be incrementally better but not revolutionary," Lipson said. □

Dueling strategies

The Burton Group, Inc.'s Catalyst Conference held last week in San Francisco could have been called "Dueling directories and Internet strategies."

Jim Allchin, senior vice president of Microsoft's Personal and Business Systems Group, focused on how the company's Transaction Server can be used to build applications. He also outlined the features in Microsoft's Visual InterDev, the newest member of its Visual tools family.

Visual InterDev lets World Wide Web application developers rapidly build interactive, dynamic Web sites for intranet and Internet applications. The tool also is integrated with Microsoft's suite of BackOffice applications and will work with a variety of databases.

Meanwhile, Ed Reed, Novell's chief architect for Novell Directory Services (NDS) and security, told Catalyst attendees that the company will submit a Lightweight Directory Access Protocol (LDAP) road map to the Internet Engineering Task Force with additional specifications. LDAP will give users a consistent method of accessing directories. Reed declined to provide specifics, but he said Novell will submit its version of the specification next month to include fault tolerance and scalability through the NDS replication model. — Laura DiDio

MICHAEL BACE

The right stuff for Web commerce

IS staffers need new skills to enter the world of electronic commerce. That means writing Java applications and working with artists to help make a Web site look attractive and even fun, giving it "the appeal that only an artistically focused person can bring to it," says Dr. Dennis Sinar, (pictured) associate dean of the office of informatics at East Carolina University School of Medicine. **Managing, page 79**

At LTV Steel, Robert Scharf's data mining pinpointed problems in a factory and slashed defects. Data Warehousing, page 73

Some companies are trying to make E-mail a workhorse for functions beyond messaging. The Enterprise Network, page 57

Starbucks CIO Deborah Gillotti's collaborative style wins her loyal support. Corporate Strategies, page 45

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No Domino effect for Lotus on Web

By Barb Cole-Gomolski

A YEAR AFTER Lotus Development Corp. shipped Domino, users are still having a hard time accepting the World Wide Web-enabled messaging and groupware server as a Web server.

Companies want to combine electronic-mail and Web development on one platform to reduce development and administrative costs. And Lotus has been pushing Domino as a Web server that offers better replication and security features than its competitors.

But users said Domino has two key drawbacks: Because Domino requires a browser client rather than a Notes client, existing Notes applications can't be easily ported to Domino. And the platform limits how Web developers design new applications, users said.

In response, Lotus is packaging with Domino its Lotus Go Web server, which has better support for Hypertext Markup Language (HTML) tools. But that approach means users need to manage two servers, instead of one.

"A lot of our applications utilize the full Notes client and weren't designed with Domino in mind," said Dale Llewellyn, a senior scientific computing consultant at SmithKline Beecham Corp. in King of Prussia, Pa.

The research and development group has 6,000 Notes seats and several applications "that wouldn't translate well into HTML," Llewellyn said. As a result, the division has been slower to exploit Domino than it anticipated, he said.

Part of the problem is that Domino isn't a Web server, although Lotus has been marketing it as such, said Matt Cain, a vice president at Meta Group, Inc. in Stamford, Conn. He said Domino works best if developers write applications with the company's LotusScript language, but firms want to build Web applications in standard tools based on HTML and Java.

HTML SUPPORT

With its Notes 5.0 release, due in the first quarter next year, Lotus will add native HTML support to its client. It is also prepping Java applets that render Notes client functionality within a Web browser. Lotus also is giving Domino the ability to batch import and export HTML.

"I think Lotus is moving in the right direction with Domino. They just need to move a lot faster," said Joe Jesson, a staff consultant at Amoco Corp. in Chicago, which has about 9,000 Notes seats.

Lotus officials said the criticism of Domino is unfair. "If you go with Microsoft or Netscape, you have multiple servers that you have to integrate yourself," said Angela Finney, product marketing manager at Lotus. She said the Domino and Lotus Go servers work together transparently.

Finney also downplayed Domino's HTML limits. "We are not marketing our products to those that are looking to build the prettiest HTML page they can," she said. Rather, the company is targeting sites that wish to build Web-based business applications, she said. □

THE PRICE IS RIGHT

To get functionality comparable to Domino, users would have to buy several servers from Microsoft and Netscape

Server	Price
Lotus	
Domino	$1,495 per server
Microsoft	
Exchange	$3,549 for 25 users
Internet Information Server	Free with Windows NT
Visual Basic Professional	$499
Microsoft Site Server	$1,499
Netscape	
Standard Edition*	$3,495 for 50 users

* Includes directory, messaging, Collabra and Web servers

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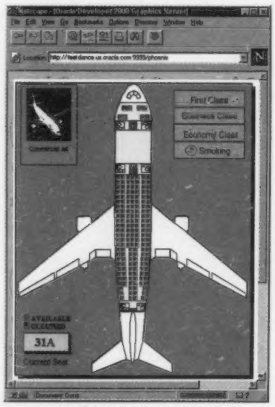
Oracle adds Web power to Developer/2000

By Craig Stedman

ORACLE CORP. said it will announce this week a fully Web-enabled release of Developer/2000, its workhorse tool for building two-tier applications tied to its databases.

The move is another step along the slow road to modernizing Oracle's development tools with support for World Wide Web and object technologies. But even with the new Developer/2000 Version 1.5, analysts said, Oracle is still catering mainly to an installed base of users who want an easy way to open up existing applications to Web browsers.

For an Oracle-centric shop such as Burlington Coat Factory Warehouse Corp., that is good enough for now.



Developer/2000 users now can add graphics to Web-based applications, such as this ticketing system

The Burlington, N.J.-based retailer had to build and maintain separate sets of Developer/2000 applications for headquarters and store employees because the latter group still works on terminals. Support for thin-client Web browsers should eliminate that need and give the stores access to the friendlier point-and-click programs used at headquarters, said Scott Fabian, the company's graphical applications development manager.

Burlington Coat is installing Developer/2000 Version 1.4W, which was released in May with support for building basic transaction processing applications that run on application servers and can be accessed from browsers. Version 1.5 should make it possible to build more "flash and visual appeal" into Web-based applications, Fabian said.

The new release adds the ability to include reports, charts and graphics in Web-based applications, according to Oracle officials in Redwood Shores, Calif. Those features had been slated for the next major release of Developer/2000 due out in the fourth quarter, but Oracle pulled the functionality forward in order to get more complete Web development capabilities to market faster.

But Oracle isn't exactly burning rubber to deliver tools that can handle distributed multitier applications, said John Rymer, an analyst at Giga Information Group in Cambridge, Mass. Even the limited step of linking Developer/2000 to the Web "has just taken them a dog's age to get done," he said.

Developer/2000 Version 1.5 is available for Windows NT immediately, Oracle said. □

HP drops Open Market

By Jaikumar Vijayan

HEWLETT-PACKARD CO. is backing away from the World Wide Web server that it has been pushing as its main Web server for the HP 3000 platform.

Two years ago, HP licensed code for Cambridge, Mass.-based Open Market, Inc.'s Secure Web Server and ported it to the HP 3000's MPE/IX operating system. Now HP is actively discouraging users from buying the Web server, according to "The 3000 NewsWire," a newsletter in Austin, Texas.

The move follows Open Market's sudden decision to drop sales of its Web server product entirely, the newsletter reported.

HP reportedly is asking customers who have already placed orders for the Web server to cancel them immediately. HP officials weren't available for comment, but a source close to the company confirmed the report.

The news caught users of the workhorse HP 3000 by surprise last week. Web server support was considered an important feature for the veteran minicomputer platform.

"I hold out the hope that HP can work a deal with Open Market to allow HP to directly market and support the Web server for the HP 3000," said Stan Seiler, a partner at Allegro Consultants, Inc., a software development and consulting company in Redwood City, Calif.

"I view it as a negative that implies that HP's commitment to the HP 3000 as an Internet-capable machine is less than strong," said Mark Bixby, a technical support manager at the Coast Community College District in Costa Mesa, Calif.

Currently there is at least one other commercial Web server, and two freeware Web products, available for the HP 3000. But the Open Market product was the only one being actively marketed, observers said. □

HP ties manufacturing systems to SAP R/3 using Windows NT. Page 65

Hacker tools can give IS a boost

By Sharon Machlis

ONE WAY TO thwart hackers is to know your enemy — or at least their tools.

An increasing number of security specialists say that if you want to keep intruders out of your network, see what happens when popular hacking software probes your network for vulnerabilities.

Probably the best-known network auditing tool is Security Administrator Tool for Analyzing Networks (SATAN), *ftp://ftp.win.tue.nl/pub/security/*. SATAN is Unix software that looks for common network security problems, such as file transfer protocol setups that allow users across the Internet to change files in the home directory. Originally written to help systems administrators tighten security, SATAN has become a popular hacking tool. By using SATAN, information systems managers can shut down easy-to-find security holes before a hacker exploits them.

Other hacker weapons also can help managers harden their network. For example, the Crack *(ftp://coast.cs.pdue.edu/pub/tools/unix/crack)* password-guessing shareware program runs through a password file, comparing it to dictionary entries and other likely possibilities.

"It works really fast," said freelance computer programmer Peter Shipley in Berkeley, Calif., whose Saturn SL2 sports a license plate "LIV2HAK." "I recommend using it on a regular basis," Shipley said. Crack will generate reports of all the accounts where it successfully guessed the log-in.

Another hacking program, the brute-force telephone dialer ToneLoc *(ftp://ftp.paranoia.com/pub/toneloc/tl110.zip)*, can help administrators find extensions where employees have hooked up unauthorized modems to their PCs, offering potentially unguarded entry points into their workplace systems.

"A grotesque number of employees have phones hooked up to their modems to circumvent your security," Shipley said.

"I think most large enterprises would certainly consider using tools off the 'net that would help in terms of an assessment standpoint," said Gary Lynch, vice president of business continuation and data security at The Prudential Insurance Company of America in Roseland, N.J.

"The best and most useful software is not always commercial products," Shipley said. "GCC [a C compiler] shipped with all known bugs fixed. I'd like to see Microsoft do that." And some maintainers of freeware on the Internet are very conscientious about upgrades and support.

NOT BUYING IT

But several corporate IS executives balked at Shipley's contention that they can take everything from encryption to network monitoring and secure access control tools for free off the Internet.

Business users want the support that comes from a known vendor, as well as the ability to seek custom applications or integration help. "Not that [freeware] might not be a good product," said Michael Goddard, vice president of information security at PNC Bank Corp. in Pittsburgh. But with many hardware platforms and software applications, vendor support and integration is crucial. □

Hackers say IS too often watches the "perimeters" of systems. Page 49

Debate rages over 'net domain naming

By Stewart Deck and Sharon Machlis

COULD A NEW domain naming system have prevented last week's Internet brownout?

Many 'net watchers said the system itself wasn't at fault — that any system is prone to human error.

Even so, when designing such a crucial, complex system, "you want to build in a human [factor] so that there's one final chance for someone smarter than a shell script to look at it and say, 'Yes, I'm going to do this,'" said Mike O'Dell, vice president and chief scientist at UUnet Technologies, Inc., an Internet backbone and service provider.

Just how did one person bring large portions of the mighty Internet to a complete stop last Thursday? A network engineer at Herndon, Va.-based Network Solutions, Inc., the registry of all Internet domain names, overrode a system alert and sent out incorrect .com and .net address files that propagated throughout the Internet and completely confused the addressing scheme.

Internet pioneer Vinton Cerf said the problem demonstrates the need to shift the domain naming and governance responsibilities away from the current administrator, Network Solutions.

O'Dell disagreed. "These kinds of things happen. There are good reasons to want to move the [domain naming structure] to a different governance structure, but I strongly reject the notion that a multi-headed governing system would have prevented this," he said. □

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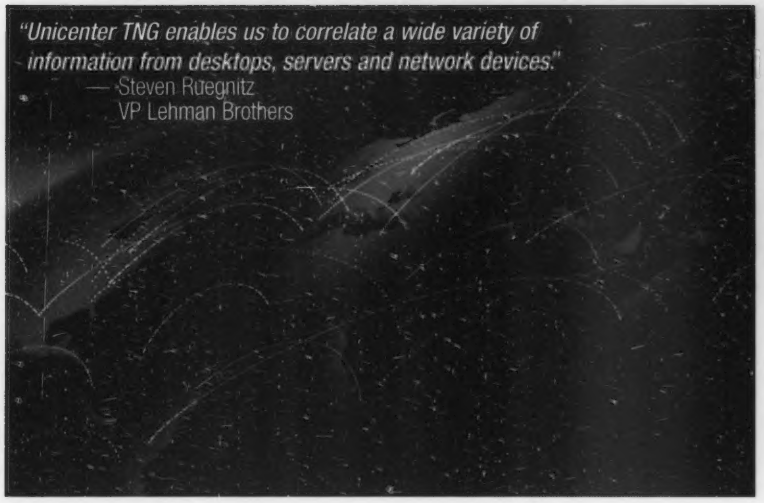

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Tech-savvy broker outsmarts rivals

▸ *Block Trading uses electronic information to beat securities giants*

By Thomas Hoffman

CHRIS BLOCK and Jeff Burke are doing what thousands of other entrepreneurs have tried to do for years: challenging the old guard by creating a new way of doing things.

The only difference is that Block and Burke have built a $20 million stock trading firm in less than four years with the aid of information technology that is widely available to industry giants such as Merrill Lynch & Co. and Smith Barney, Inc. — the very firms from which they are stealing business.

The two co-founders of Block Trading in Houston are referred to in securities circles as SOES bandits, so-named for the Nasdaq Stock Exchange's Small Order Execution System (SOES), which gives individual investors access to the "bid" and "ask" prices for a stock as offered by market makers.

Before Nasdaq introduced SOES in 1984, big brokerages such as Merrill often didn't fill small investors' orders for as long as a week. In the interim, if a customer asked a broker to buy 1,000 shares of XYZ, Inc. at $10 per share, the broker would typically buy the shares at $9 per share, charge a commission and profit from the "spread."

Using the all-electronic SOES systems, Block Trading's customers can walk into one of its regional offices and look at a Windows NT workstation screen to see how much a given stock is being traded at in real time. The customer then can place an order in person or over the telephone and secure a trade within a matter of seconds.

The reason the big boys keep doing business as usual, Block said, is that "there's too much money to be made the old way."

ELIMINATE THE MIDDLEMAN

Companies such as Block Trading are reshaping the financial services landscape by cutting out the middleman — in this case, market makers. "If you're trying to break in to this industry, you need a unique twist you can offer customers, or else you'll fail," said Joseph Rosen, managing director at Enterprise Technology Corp., a New York-based consultancy for Wall Street firms.

Rosen pointed to Bernard L. Madoff Investment Securities, a New York-based broker/dealer that processes 10% of the New York Stock Exchange's daily volume. Madoff uses a skeleton staff and sophisticated computer networks to settle electronic trades for discount brokers such as ETrade Group, Inc. in Palo Alto, Calif.

For Madoff, "the business strategy has been driving what the technology should do," Rosen said.

Block Trading, meanwhile, plans to extend online remote access to its customers within the next year, after it works through security and customer support issues, Burke said.

Block, which has 18 offices nationwide, plans to expand soon into New Orleans, Chicago and San Francisco. It is studying various online access channels for its customers, such as Internet and direct-dial.

Customers have online access only to company information *(www.blocktrading.com)*. □

Block Trading's Chris Block (left) and Jeff Burke use SOES to give customers real-time access to trade information

CORBA finds ally in AlliedSignal division

By Sharon Gaudin

ALLIEDSIGNAL, INC.'S Engines Division isn't just dabbling in CORBA. It depends on the Common Object Request Broker Architecture as the framework for all its new computer applications.

The division, based in Phoenix, has spent the past two years building reusable objects based on CORBA application programming interfaces and setting up CORBA to serve as the plumbing that connects components, clients and servers.

Now the framework is done, and the first application built on it is complete.

A presentation on AlliedSignal's framework is expected to be a highlight of the Object World West conference this week in San Francisco.

"We're building the fundamental building blocks that developers will use as they build applications in the future," said Wayne Haughey, information systems group leader at AlliedSignal's Engines Division. "Every time we pick this up and build a new application, we're avoiding [about] five man-years of work — and that's very conservative."

CORBA FOR THE MASSES

"Every time we get a big customer moving to CORBA, it helps the cause," said Bill Hoffman, vice president of business development at Object Management Group (OMG) in Framingham, Mass.

"The more that come out, the more people [will] believe that this is a viable way to build enterprise applications. We've got to sell CORBA. We can't just sell to each other forever," he said.

CORBA enables applications, components and databases to communicate easily with one another across multiple operating systems.

The object-oriented technology goes head-to-head in the market with Microsoft Corp.'s Common Object Model (COM) and Distributed Common Object Model (DCOM), both of which work only on Windows platforms.

OMG, a consortium of about 700 users and vendors focused on platform independence for object-oriented programming, is vigorously backing CORBA in the ongoing battles with DCOM and COM.

"Whenever any big company comes on with CORBA, it's a good sign," said Larry Hagerty, an IS manager at GTE Data Services, Inc. in Tampa, Fla. "Detractors keep predicting that CORBA is going to die, but it keeps hanging on." □

SHORTS

Microsoft posts record earnings

Microsoft Corp. posted record earnings of $3.45 billion for fiscal 1997, which ended June 30, a 54% increase over last year. The company had record revenue of $11.36 billion, a 31% increase over last year's $8.67 billion. For its fourth quarter, Microsoft's net income was $1.06 billion, an 86% increase over last year. Fourth-quarter revenue was $3.18 billion, a 41% increase over the same quarter last year.

Feds must speed Y2K work

Key federal agencies must "move with more urgency" to avoid disastrous problems with government computer systems in the year 2000, the General Accounting Office (GAO) told Congress recently. Most agencies are leaving no margin of error for unanticipated delays, according to Joel C. Willemssen, the GAO's director of Information Resources Management, Accounting and Information Management Division. The GAO is also concerned that the Office of Management and Budget has scheduled only one month to test converted and replaced systems for year 2000 compliance.

McAfee, Symantec get contracts

In what a Pentagon officer said may be the largest-ever software license, the Defense Information Systems Agency (DISA) last week awarded contracts for antivirus protection for about 2.1 million military desktop systems. **McAfee Associates, Inc.** in Santa Clara, Calif., and **Symantec Corp.** in Santa Monica, Calif., submitted the winning bids.

Walter resigns from AT&T

John Walter resigned last week as president of **AT&T Corp.** in Basking Ridge, N.J., after the company backed out of its promise to make him successor to chairman and CEO Robert Allen. Walter, 50, joined AT&T in November and was touted as the next leader of the long-distance giant after it spun off Lucent Technologies and NCR Corp.

Lucent to buy Octel

Lucent Technologies, Inc. intends to buy its principal messaging competitor, **Octel Communications Corp.**, for $1.8 billion, or $31 per share. The acquisition, approved by both companies' boards, could be completed next month. The two companies have been pursuing the unified messaging market.

SHORT TAKES John Chen, 42, has resigned as president and CEO of **Siemens/Nixdorf Informationssysteme AG** in Germany to become president of **Sybase, Inc.** He will be replaced by Raj Nathan, 43, who joined Siemens Pyramid in San Jose, Calif., in 1991. ... **Sybase**, in Emeryville, Calif., reported a $4.4 million second-quarter profit on $237.6 million in revenue. It was the company's third straight quarter in the black, though revenue dipped 5%. ... **Sun Microsystems, Inc.** reported fourth-quarter revenue of $2.543 billion, up 26% from the year-earlier period. ... **Dell Computer Corp.** in Round Rock, Texas, will cut prices on three of its OptiPlex desktops aimed at corporate users.

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Sun hits Java punch list, but users crave speed

By Sharon Gaudin

USERS ARE GLAD Java is taking some steps toward maturity, but they are really holding their breath for pure speed.

Mountain View, Calif.-based JavaSoft, a division of Sun Microsystems, Inc., is set to make several Java-oriented announcements this week at Internet World/Summer '97 in Chicago (see related stories, pages 1 and 116). Java is about to gain drag-and-drop capabilities, a way to turn ActiveX controls into Java applets and a way to run Java applets inside an ActiveX container, such as Microsoft Corp.'s Office or Excel, according to a JavaSoft spokesman.

The enhancements will not only make it easier for developers to build visual applications and coordinate Java applets and ActiveX controls, but they also will add a new level of maturity to a young language. Java, which was launched less than two years ago, has taken its share of lumps for gaining so much market share before building up component libraries, fonts and speed.

"The improvements are good, but they're just a couple on the list of what needs to be done to Java," said Claude Vignali, information systems manager at Ericsson, Inc., a $15 billion telecommunications company in Stockholm.

Ericsson's Claude Vignali: **For Java, "It's all about speed"**

"It's all about speed, though. Java's speed was debilitatingly slow. It's getting better, but it needs another generation of a Java Virtual Machine to get to the point where Java is fast enough to be really useful."

Java is an interpreted language, so its code needs to be translated through a virtual machine. That takes more time than a native language, such as C++, that runs without interpretation.

Vignali said Java needs to build up more component libraries to be more useful. But the bottom line is really all about speed for Vignali and a huge percentage of users.

And JavaSoft says it will be answering those pleas with its upcoming HotSpot Java Virtual Machine, which is slated to go into beta testing this fall. There aren't any specific announcements about HotSpot planned for Internet World, but a JavaSoft spokesman said development is on track.

HITTING THE SPOT?

HotSpot was designed to run Java code faster by compiling it — maybe even faster than native C++ code, which is the industry giant for speed and performance.

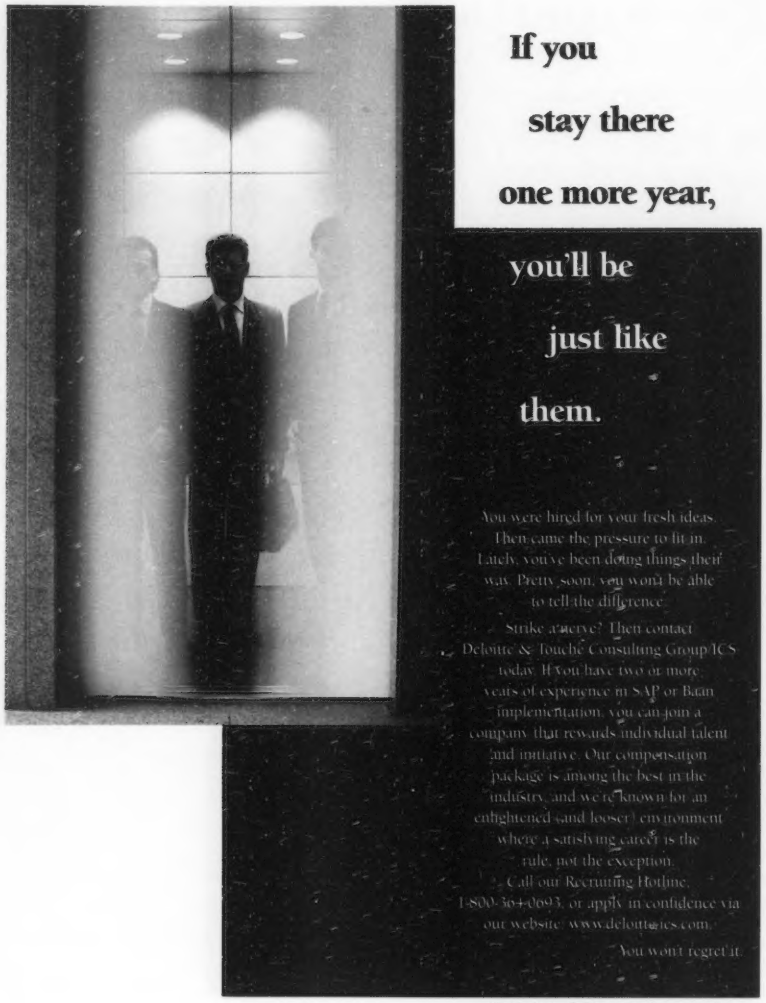
Larry Hagerty, an IS manager at GTE Data Services, Inc. in Tampa, Fla., said that's good news.

"One of my concerns is that Microsoft has done some good things to speed up Java, but it's only on the Wintel platform," Hagerty said. "Some of those speed improvements should be coming out of Sun for Pure Java applications. That would be the thing that would tip a lot of people sitting on the edge into the Java camp."

"It will be the fastest implementation by a long shot," the JavaSoft spokesman said. "The first release isn't going to be the final end point for performance. By spring, this will hit full-blown C++ speed."

But Hagerty said he is heartened by the advancements JavaSoft will announce this week.

"Drag-and-drop is important," Hagerty said. "That's functionality people have been asking for for a long time. It's something that should have been there from Day 1, so this is another step in making Java a little more mature." □



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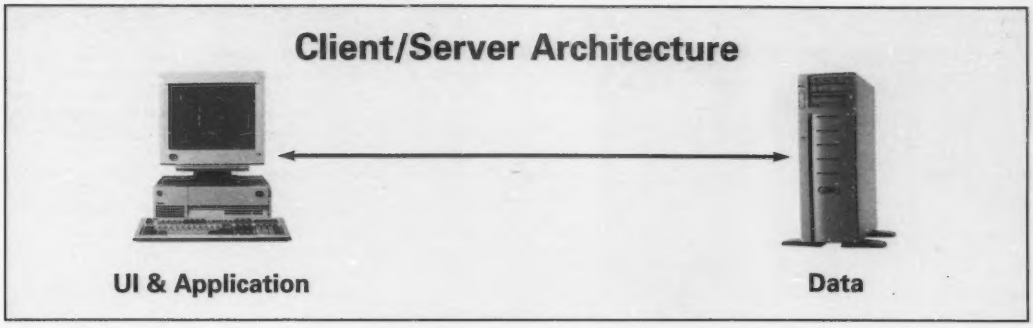

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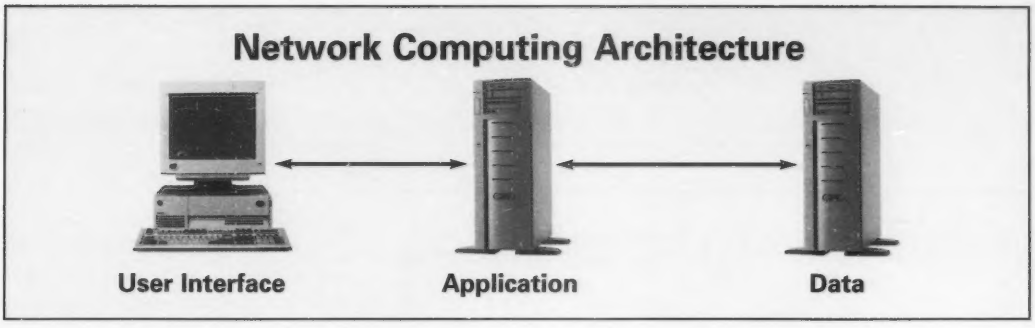

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CA pitch gets mixed reviews

▸ *Users cool to Unicenter TNG framework plan*

By Patrick Dryden
NEW ORLEANS

COMPUTER ASSOCIATES International, Inc. users said they don't see how they will benefit from the framework version of the enterprise management software pitched at CA-World '97 last week.

CA has packaged key services, which form the foundation of the Unicenter TNG suite, into a free framework.

CA plans to distribute more than 1.5 million copies of the framework on the Unix and Windows NT boxes of its partners in an effort to dominate the emerging market for enterprise management tools.

Server vendors said they will bundle the Unicenter TNG Framework and support CA's full suite for managing distributed systems. And developers of competing enterprisewide tools said they will adapt to the framework as well.

CA's move undercuts Tivoli Systems, Inc., analysts said. Tivoli sells the TME 10 enterprise management framework to support tools from Tivoli/IBM and partners. The analysts noted that CA's free framework is equivalent to the $150,000 Tivoli Enterprise Console and that premier Tivoli partners such as Legato Systems, Inc. and Unison Software, Inc. now will support Unicenter TNG as well as TME 10.

But Unicenter TNG users said they are well under way with their implementations and don't see the framework's immediate benefit.

Virginia Power's Dennis Fishback

The framework "promises only indirect advantages"

Morgan Guaranty's Bill Oris:

Many critical vendors already support the framework

"The framework is CA's attempt to establish Unicenter TNG as a de facto standard, but it promises only indirect advantages for existing users like us," said Dennis Fishback, a data processing manager at Virginia Power in Richmond, Va.

That's because most point products used at the electric utility already work with Unicenter TNG, Fishback said.

"A lot of our critical vendors already are on the list supporting the framework," said Bill Oris, a vice president at Morgan Guaranty Trust Co. in New York.

The framework should eventually provide "more out-of-the-box support for managing systems," but it is only a start, said Larry McDermott, remote server manager at Shared Medical Systems Corp. (SMS) in Malvern, Pa. "You still need a higher level of product intelligence." For the outsourcer of health care services, that means a full set of Unicenter TNG applications.

Using the suite, SMS was able to reduce its server support staff from seven to three in just three months, for a projected savings of $450,000 this year in personnel costs, McDermott said.

SMS wants to manage client/server applications at customer sites the same way, to keep support costs low. If vendors ship their servers preconfigured with CA's framework, then SMS operators can call each one remotely to turn on management and distribute the applications, McDermott said.

Through CA's framework and broader support for management standards, more software vendors can move their products closer to Unicenter TNG, and users can plug installed tools in to the suite, said Chip Gliedman, a management analyst at Giga Information Group in Cambridge, Mass.

But the process could take three to five years, he said. In the meantime, the framework "smooths the way for adoption of Unicenter TNG because the user community will see it on the machines they buy and play with it before they hit the uninstall button," Gliedman said.

The software installs in about 10 minutes, discovers standard management information embedded in systems and internetworking devices and interacts with the agents and log files in Windows NT systems, for example. □

A shift to openness

- Sixteen partners endorsed Unicenter TNG, including Acer America Corp., Apple Computer, Inc., Data General Corp., Hewlett-Packard Co., Legato Systems, Inc., NCR Corp., SCO, Inc., Sequent Computer Systems, Inc., Sun Microsystems, Inc., Tandem Computers, Inc., Unison Software, Inc. and Unisys Corp.
- Managers will be able to run Unicenter TNG from more locations than just Windows NT consoles. A new Java-based World Wide Web browser interface will enable interaction from a network computer, Macintosh or Unix system.
- CA committed to make Unicenter TNG comply with many more systems and standards to provide a "superset" management platform that can handle the diversity of heterogeneous enterprise environments.

  CA has incorporated the Common Information Model object definition standard defined by the Desktop Management Task Force in the Unicenter TNG object architecture. That helps Unicenter TNG interact with devices through the Desktop Management Interface and the Simple Network Management Protocol.

  Unicenter TNG soon should be certified as compliant with the Object Management Group's CORBA 2.0. The latest Common Object Request Broker Architecture, which includes Internet Inter-ORB Protocol, can enhance communications between Unicenter TNG services and other vendor tools.

  Other integration efforts target the Java Management application programming interface and the Mac OS and Rhapsody operating systems from Apple. — Patrick Dryden

App vendors set up prefab warehouses

By Randy Weston and Craig Stedman

USERS LOOKING for quick and relatively cheap data warehouses are turning to prefabricated offerings from their application vendors.

"We had some concerns about managing a [data warehouse construction] project," said Kevin Brassard, project manager at MPM Corp. in Franklin, Mass. "We had no expertise in designing data warehouses."

So MPM, a maker of manufacturing equipment for the electronics industry, is becoming an early tester of QAD, Inc.'s preconfigured data warehouse. MPM already runs QAD's supply chain management software, MFG/PRO.

With its announcement this week, QAD, in Carpinteria, Calif., joins the trend toward prebuilt warehouses that are tightly integrated with packaged client/server applications.

Market leader SAP AG last month announced its plans to build an R/3-specific data warehouse, which is due for general release next March.

KEY DIFFERENTIATOR

Built-in data warehousing is becoming "a necessary part of the equation" for application vendors that are struggling to differentiate their products from rival offerings, said Alan Paller, director of research and education at The Data Warehousing Institute in Plano, Texas.

For users, the prepackaged warehouses could reduce the time, cost and hassles of a homegrown data warehouse. But there are downsides, Paller said. Application-specific warehousing increases vendor lockin and is "a little narrow-minded" for users who need the ability to analyze data from a variety of production systems, he said.

But for some users, the tight link between the data warehouse and the packaged application is exactly what makes it attractive.

British chocolate giant Cadbury PTY Ltd. is standardizing operations on R/3. Given that implementing R/3 and building a data warehouse are each huge projects, it makes sense to get a prebuilt data warehouse with the R/3 package, said Toni Serra, project manager at Cadbury's branch in Port Elizabeth, South Africa.

"Our intent is to create information awareness rather than develop a super-duper, high-tech data warehouse," Serra said. "Once we increase awareness, then we can add more functionality."

Brassard said MPM's decision to go with a packaged data warehouse was easy. He said the $200,000 to $300,000 that the company is spending on the prefabricated system is far less expensive than building one from scratch.

Brassard said MPM wanted the warehouse to be built quickly, have a payback of a year or less and require minimal consulting — criteria a homegrown warehouse couldn't meet. "We can't take two years to get something implemented," he said.

QAD's prebuilt warehouse uses Data General Corp.'s Aviion servers that run Windows NT and an Oracle Corp. Oracle7 database.

Data General and QAD said they will configure the data warehouse so it is 80% ready to run when delivered to the user. The remaining configuration will need to be done according to the specific needs of the user company. □

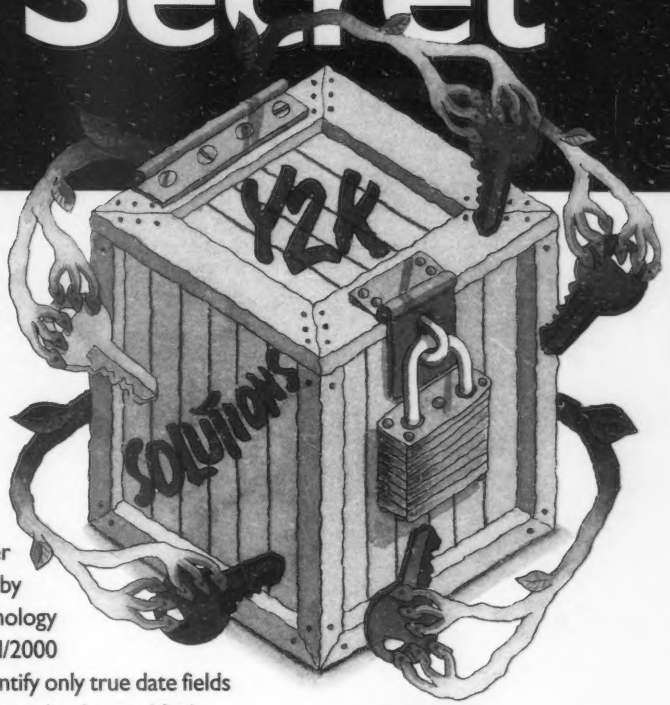
Steps involved in building a data warehouse

1. Map source databases and create extraction programs
2. Develop business rules to deal with problem data
3. Create transformation routines to standardize data
4. Design repository to give users views of data
5. Set up programs to load data into the warehouse

Time: 18 to 36 months
Cost: $1 million to $2 million

Source: Meta Group, Inc., Stamford, Conn.; International Data Corp., Framingham, Mass.

Their Ugly Little Secret



The Secret Is Out

Most so-called Y2K solutions share an ugly little secret: the successful implementation of their approach requires you to hire hordes of expensive, hard-to-find programmers. And if you've read the industry reports, you already know that the demand for this kind of manpower far exceeds the supply.

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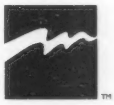

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Businesses outsourcing more, but less thrilled with results

By Robert L. Scheier

OUTSOURCING more and enjoying it less?

You're not alone. Analysts report that even as more customers turn over some information systems operations to outside vendors, many are unhappy with the results.

"Many outsourcers continue to overpromise and underdeliver," said Patrick McBride, an analyst at Meta Group, Inc. in Stamford, Conn. "Numerous contracts are currently in arbitration or being renegotiated."

A survey of 431 U.S. and Canadian chief information officers, conducted late last year and early this year by consulting firm Deloitte & Touche, showed them consistently disappointed with outsourcers.

SMALL IMPROVEMENT

The biggest sore points were the level of expertise and sophistication that outsourcers provide and that outsourcing didn't improve IS services as much as expected.

"About 70% of users are expecting to restructure their outsourcing contracts at least once," and at least 15% will terminate contacts altogether, Gartner Group, Inc. Executive Vice President Len Bergstrom said last week.

For example, The Mutual Life Insurance Co. of New York (MONY) terminated a seven-year, $210 million outsourcing agreement with Computer Sciences Corp. (CSC) after only three years. MONY and CSC officials declined comment on the breakup of the deal.

But analysts expect CIOs to do more outsourcing because they are stuck between ever-changing technology, shrinking budgets and new demands.

When outsourcing, analysts suggest that customers understand their needs up front, be more explicit about what they expect and spell out how the contract will change as technology or business conditions change.

Another tricky area is ensuring that outsourcers pass on price cuts on items such as PCs, said Bill Herbst, a senior consultant at International Computer Negotiations, Inc., a Winter Park, Fla., consulting firm.

Herbst recommended that contracts break out costs for specific items rather than bundle PC hardware, software, installation and support in one flat fee. That makes it easier, he said, to pinpoint which prices should be renegotiated.

Outsourcing contracts also should explicitly state requirements such as how long an outsourcer must continue to provide services if part of the company is sold and how far prices will fall if the number of users falls, Herbst said.

Finally, the contract must spell out penalties if the outsourcer can't deliver.

Several analysts said the best remedies don't impose fines on the outsourcer, but compel the outsourcer to finish the job right.□

THE FINE PRINT

Protect yourself against common outsourcing problems while negotiating the contract

Problem	Contract request
Vendor can't deliver promised service	Specific service-level agreements that spell out results
Outsourcing doesn't cut costs as much as hoped	A breakdown of costs for specific items; clauses that commit the outsourcer to pass on price cuts
Vendor won't cut its prices when you downsize	Clauses that require the vendor to keep supporting businesses for a set period after they are sold and to cut prices as user base shrinks

Source: International Computer Negotiations, Inc., Winter Park, Fla.

Outsourcing bit by bit

AlliedSignal, Inc., a Morristown, N.J.-based manufacturing and technology firm, earlier this month signed a multimillion-dollar outsourcing contract with Entex Information Services in Rye Brook, N.Y.

Unlike many deals in the late 1980s and early 1990s, when companies turned over their entire IS function to outside vendors, AlliedSignal is having Entex do only PC and LAN support. That bodes well, said Eugene Procknow, national director of Deloitte & Touche's technology outsourcing advisory services in Boston.

"People who outsource just the data center or just the help desk tend to be happier with their deals," he said.

AlliedSignal is going slow. Entex at first will support only 36,000 users in North America, getting the right to serve users worldwide only "if it is proven out that Entex is the most economical and most efficient way" to support those users, said David Wajsgras, chief financial officer and director of financial services at the corporate AlliedSignal unit that provides IS and other functions to the company's operating units.

Wajsgras said he also set "very specific success criteria" by breaking down the per-seat cost for PC support into approximately 15 services, such as installing a PC, moving an existing PC and providing help desk services.

Each service has specific performance measures Entex must meet. Entex will earn financial incentives or penalties based on performance.

The pact also includes an annual benchmark of industry price trends meant to ensure Entex passes on price cuts in such things as PC hardware or software.

So far, Wajsgras said, "both sides are very pleased and satisfied," and Entex is meeting or exceeding all its performance criteria.

— Robert L. Scheier

Tools help users assert licensing power

By Tim Ouellette

USERS ARE getting more power to manage their software licenses — and negotiate better deals.

Isogon Corp., a maker of mainframe license monitoring tools, is taking over development of a rival client/server tool, dubbed IFor, that traditionally has been embedded mainly in Unix operating systems.

The New York vendor plans to add user front ends to the embedded code, which will give users more control over monitoring license data than they have now.

Isogon will then integrate its existing mainframe products with the Unix/Windows NT tools to give data centers one view of their enterprise software licenses (see chart).

The move comes as an IBM large-systems user group, Guide International Corp. in Chicago, works with vendors to develop a common way to let users track all their software licenses, from the mainframe to the desktop [CW, June 23].

"This gets Isogon closer to what they want to do with Guide," said Christopher Germann, a research director at Gartner Group, Inc. in Stamford, Conn. But Isogon will have to do more in the desktop area to get more support for license management, he said.

The IFor code, from Gradient Technologies, Inc., has been embedded mostly in Unix vendor systems to work with their systems management software and to prevent software piracy.

"License managers are still in their infancy," said Jim Geisman, president of Marketshare, Inc., a software licensing consultancy in Wayland, Mass. "But what is going to happen is that users are going to want to pay for what they use and eventually only if they get value from that use."

Although there are several metering and monitoring tools available, they aren't as sophisticated as license managers. And they are limited to certain platforms or applications, so users have lacked one clear picture of their software usage with which to negotiate future deals and upgrades.

Even as Guide continues its specification work, Isogon and other vendors aren't standing still. Isogon next month will ship a mainframe tool that conforms with Guide's preliminary specification.

And Isogon President Robert Barritz said he hopes to strike deals with other leading license tool developers — including Globetrotter Software, Inc. in Campbell, Calif., and Elan International in Santa Clara, Calif. — to enable users to access data in their various license management products.

MORE WEIGHT

Much of the push for license management has come from large systems shops, which carry more weight when negotiating deals.

For example, Imperial Chemical Industries PLC (ICI) uses Isogon software to identify which ICI companies use which mainframe applications the most. It can then more realistically charge back for that use, according to Terry Woodlief, manager of technical support at the chemical giant's data center in Research Triangle Park, N.C.

"It's about knowing what we really have and what we are actually paying for," Woodlief said.□

LET'S MAKE A DEAL

Isogon will do the following to integrate mainframe and client/server license management tools:

- **Add user access to the IFor client/server license manager, to be sold as add-ons**
- **Bring IFor in line with the Guide user group license management specifications and requirements**
- **Give users one-screen access to data from mainframe and client/server license management tools**

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Informix tries to boost NT presence

▶ *Focus on Universal Server costs vendor sales*

By Craig Stedman

WINDOWS NT is our friend.

Informix Software, Inc. will try to hammer home that message at its user group conference this week in San Francisco.

Until now, Informix left Windows NT on the marketing back burner. Now the vendor is out to convince database buyers that it cares a lot about the Microsoft Corp. operating system.

Informix doesn't lack for Windows NT products; the workgroup and enterprise versions of its mainstay OnLine database software run on NT servers.

But until recently, Informix's marketing was fixated on its new object-enabled Universal Server database. That strategy gave short shrift to NT.

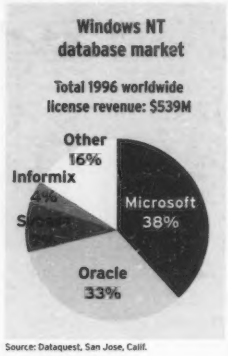
That has cost Informix dearly with users such as The Guardian Life Insurance Company of America. The New York-based insurer late last year considered Informix for a group sales proposal system that was being designed to run on Windows NT servers, but Informix couldn't keep up with Oracle Corp. in performance and marketing.

"We honestly felt that Informix wasn't clearly focused on [Windows NT] at the time," said Thomas Baker, vice president of information technology at The Guardian. "Certainly their focus wasn't as clear as Oracle's was."

For example, Baker said Oracle was able to point The Guardian to other customers who were already using its databases on NT — something Informix had trouble doing.

Informix's sales of Windows NT databases last year were miniscule compared with what Microsoft and Oracle managed, according to market researcher Dataquest in San Jose, Calif. (see chart).

The lack of a bigger NT presence was widely cited as one of the key contributors to Informix's whopping $140 million loss in the first quarter.



Source: Dataquest, San Jose, Calif.

DROPPED THE NT BALL

"They've watched a marvelous market unfold right in front of them and executed poorly," said Peter Kastner, an analyst at Aberdeen Group, Inc. in Boston. "Informix has always been Unix-centric, and it dropped the ball on how important the NT market was."

Informix officials declined to comment on this week's NT-related announcement. The Menlo Park, Calif., company isn't expected to roll out any major new products beyond demonstrating a still-in-the-works version of its OnLine XPS parallel database that will add support for Windows NT and transaction processing.

The announcement also is expected to include benchmark results and indirect channel plans that are meant to show that Informix is finally getting serious about marketing its software on NT. To date, Informix lacks a formal program for pushing databases through Windows NT resellers.

The Gap, Inc., a San Francisco-based clothing retailer, chose Informix as its standard client/server database last fall.

As a result, Windows NT-based systems that are being rolled out to its 2,000 stores were switched last month from Oracle to Informix databases.

But Bruce Watson, senior director of information administration at The Gap, said he wants Informix to have wider success on NT.

"They got their heads turned a bit with [Universal Server], thinking there was going to be some magic that just wasn't there," he said. "Now I think they're becoming a little bit more focused on real markets." □

Second-quarter queasiness

Sharing the spotlight with Windows NT at the Informix user group conference will be the issue of when the company expects to stop losing money.

Informix considered releasing its second-quarter financial results at the San Francisco conference, but sources said that announcement probably will be put off until another time. For now, Informix users continue to take the likelihood of another quarterly loss in stride.

"Obviously, I want Informix to do better because I would hate to see them start cutting back on development and product deliveries," said Bruce Watson, senior director of information administration at The Gap in San Francisco. "But I haven't seen any evidence of cutbacks in the service we're getting."

Brad Jensen, a vice president at Sabre Technology Solutions in Fort Worth, Texas, said Informix "hasn't pulled back one iota from what we can see" in terms of technical commitments. Sabre plans to use Informix's Universal Server software in a data warehousing project for parent company AMR Corp.'s American Airlines unit.

But Jensen said he will watch the second-quarter numbers closely. "An additional surprise might make me start biting my nails," he said. — Craig Stedman

NT/Unix

CONTINUED FROM PAGE 1

ways to interoperate between the two. ... It is a very hot issue right now," said Mary Hubley, an analyst at Datapro Information Services Group, Inc. in Delran, N.J.

The flexibility offered by the packages is opening doors for Unix shops that want to stay with Unix while implementing new applications on NT.

"NT seems to be becoming almost a de facto standard in the Department of Defense and a growing number of other agencies," said Bob Dornan, a federal procurement expert and vice president at Federal Sources, Inc. in McLean, Va. "The onslaught is happening, and it is not reversible."

GOVERNMENT PACTS

Recently, for instance, the U.S. Air Force agreed to include Windows NT and Softway's OpenNT software as a bundled alternative to Unix on a $973 million workstation contract.

The Air Force approval followed a similar move by NASA, which recently endorsed Windows NT, with OpenNT as an option, on a workstation contract valued at more than $1.8 billion over the next four years.

OpenNT is a sort of module that plugs in to NT and allows it to run recompiled Unix applications natively on NT.

The software complies with the Posix 1, Posix 2 and the X/Open Portability Guide Base 4 (XPG4) standards that many government agencies require. Windows NT has claimed Posix compliance for some time, but until now only Unix/RISC vendors were able to meet all the other requirements.

"Softway is giving Microsoft a way to go in and bid for billions of dollars worth of federal contracts," which have been limited mainly to Unix by previous standards requirements, said Jean S. Bozman, an analyst at International Data Corp. in Mountain View, Calif.

The Navy's Marvin Langston: "We are trying to make these systems interoperable"

"There are user segments [within the Department of Defense] that are looking for ways to mix Windows NT and Unix applications together in one environment" for ease of use, management and cost reasons, said Gary Zeigler, a vice president at Hughes Data Systems, lead integrator for the Air Force contract.

For instance, the U.S. Navy, which requires Posix compliance, foresees a mixed Unix/NT environment.

"We are looking at NT whenever it makes sense ... but [we are] not throwing out Unix," said Navy chief information officer Marvin Langston. "We are trying to make these systems interoperable and scalable."

Integration technology "gives users a way of doing it, while still meeting standards and performance requirements," Zeigler said.

For example, NASA's Langley Research Center in Hampton, Va., uses Insignia's Ntrigue server to let users open up electronic-mail attachments created in Windows environments from Unix workstations.

And Superior Programming Services, Inc. in Houston uses OpenNT to develop a real-time war command database management system for the Navy that will run in Unix and NT environments. □

Users already into NT

A lot of the integration effort that is starting to happen in government departments has already occurred in the commercial arena, analysts said. Increasingly, commercial users are making use of the recent availability of suites, integration tools and migration services to extend Windows NT/Unix interoperability, analysts said.

"Some of the stuff out there is already so good, you can run a Unix server from an NT client and not even know that it's a Unix server you're dealing with," said Ken Dawson, an order-fulfillment leader at Celanese Acetate, Inc., a subsidiary of Hoechst AG in Charlotte, N.C.

"Unix/Windows integration has always been an issue. But it is becoming a lot more urgent now, because a lot of users are upgrading their systems to NT," said Mary Hubley, an analyst at Datapro. — Jaikumar Vijayan and Sharon Machlis

COMPUTERWORLD

For these and other related links on Unix/NT integration, see our Web site at *www.computerworld.com/links/9707221unixntlinks.html*

► UnixNT.com *www.unixnt.com/*
This online magazine is devoted to issues related to Unix/ Windows NT integration.

► Unix-to-NT Resource Center *www.nentug.org/unix-to-nt/*
This resource center from the New England NT Users Group contains a list of frequently asked questions and information about how to port Unix applications to NT.

PeopleSoft's vertical push lacks beef

▶ *Industry-specific software is several months away*

By Randy Weston

PEOPLESOFT, INC. is going after the telecommunications, utility and transportation industries with a new vertically oriented business unit that caters to the infrastructure market.

But don't look for anything new in PeopleSoft's products.

So far, all the Pleasanton, Calif., software maker has to offer is a nifty label on the same old stuff — Version 6 of its human resource, financial and manufacturing modules, shipping now, and Release 7, due in December.

Still, PeopleSoft officials promise more industry-specific software to come soon.

"Version 7.5, due in the first half of next year, will have new functionality to better address the markets," said Rod Walters, PeopleSoft's vice president of industry sales and marketing. "We are going to be nailing down during the next six months what we are going to do as far as strategy for the market."

"[PeopleSoft's] strategy makes sense. What they told me a year ago they were going to do, they delivered on, and I have confidence they will deliver again."
— Dennis Byron, IDC

Walters said PeopleSoft also wants feedback from customers about what added functionality they need. He said the strategy may also include partnering with or even buying other software firms to fill any holes.

Dennis Byron, an analyst at International Data Corp. (IDC) in Framingham, Mass., said PeopleSoft so far has used this strategy successfully in most of the vertical markets it has attacked.

Most notable was its purchase of Red Pepper Software, Inc. when it sought a piece of the manufacturing industry pie. PeopleSoft also paired with software systems maker Intrepid Systems, Inc. to enter the retail market.

"[PeopleSoft's] strategy makes sense," Byron said. "What they told me a year ago they were going to do, they delivered on, and I have confidence they will deliver again."

He also said that although market leader SAP AG has on the market a version of R/3 designed specifically for the three industries, the German software giant's lead is "a matter of months, not a quantum leap."

In fact, PeopleSoft has already hooked up with Indus Group, Inc. in San Francisco to offer utility companies some of the functionality they need, such as work management, materials management, procurement and labor entry applications. The new infrastructure division is part of PeopleSoft's strategy to align its internal operations along specific vertical markets.

The idea is that customers who use PeopleSoft products will be grouped with others of like needs and that eventually the PeopleSoft product will evolve to cater to specific industry needs.

But that strategy involves throwing in catchall categories such as "service industry" for a potential customer that may not fall into any other category.

Byron said his only concern is that PeopleSoft may be taking on more than it can handle by trying to cater to all businesses instead of taking the Baan Co.'s approach of concentrating on a few key markets. □

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NEC

Software AG extends mainframe security

By Tim Ouellette

BIG IRON soon may act like Big Brother at some client/server installations, at least when the applications access mainframe data.

Last week, Software AG Americas in Reston, Va., rolled out Entire Security SAF Gateway, software said to extend a mainframe's System Authorization Facility (SAF) to external Windows NT, Hewlett-Packard Co.'s HP-UX and World Wide Web-based applications.

The gateway will act like Big Brother by monitoring access to those client/server applications and applications that access mainframe data. The users may not know that their access is managed by the mainframe.

Yet users are happy with the Big Brother role, at least in terms of gaining the security they are familiar with on the mainframe. Distributed applications and "extranets" have lacked similar consistent and reliable security schemes.

"We needed something like this because once we opened up our mainframe data to the distributed [outside] world, we needed a way to secure it," said Terri-Lynn Thayer, associate director of administrative systems at Brown University in Providence, R.I.

"Once we opened our mainframe data to the distributed [outside] world, we needed something [like this gateway] to secure it."
– Terri-Lynn Thayer, Brown University

Brown plans to let students and staff access mainframe-based schedules and grades via Web browsers.

The catch: Entire Security SAF Gateway initially will support only outside connections to mainframe Software AG programs such as the Adabas database and Entire Broker middleware. In fact, as part of the Entire Broker middleware family, users will need to have Entire Broker installed at a beginning price of $38,000 to get the best results. Pricing for the gateway then starts at $40,000.

But the SAF application programming interface (API) will let users extend mainframe security to non-Software AG applications. And, more important, the API will let users secure distributed applications that don't touch the mainframe at all, basically turning the mainframe in those instances into a high-end security server.

The gateway accesses security definitions within existing mainframe security packages such as IBM's Resource Access Control Facility and Computer Associates International, Inc.'s CA-ACF2. It then authenticates users, validates messages and encrypts passwords. The alternative is a patchwork security scheme.

Users said that means they can save long-term budget dollars by harnessing existing mainframe skills.

"We're glad the gateway supports CA-ACF2, because it is something that we know, and we have people already maintaining those rule sets," Thayer said.

"From the distributed computing perspective, this is required," said Michael Barnes, an analyst at Hurwitz Group, Inc. in Newton, Mass. He noted that non-mainframe systems haven't focused on security as much as they should.

Proprietary client software would simplify access to mainframe data, but the security concerns arise from the multiple paths users take today to get at the data.

"If you try to use [Open Database Connectivity] clients, ActiveX or remote procedure calls, then you start seeing legacy data attacked from different levels of security," said Dennis Hoffman, a database specialist at the state of Alaska's department of administration in Anchorage. □

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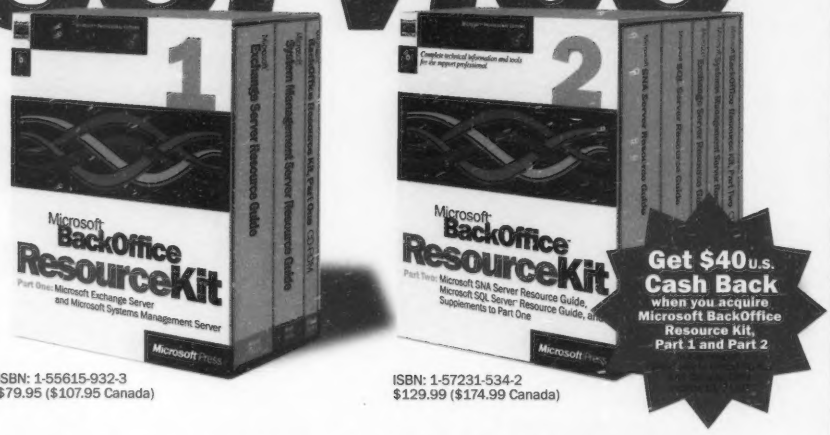

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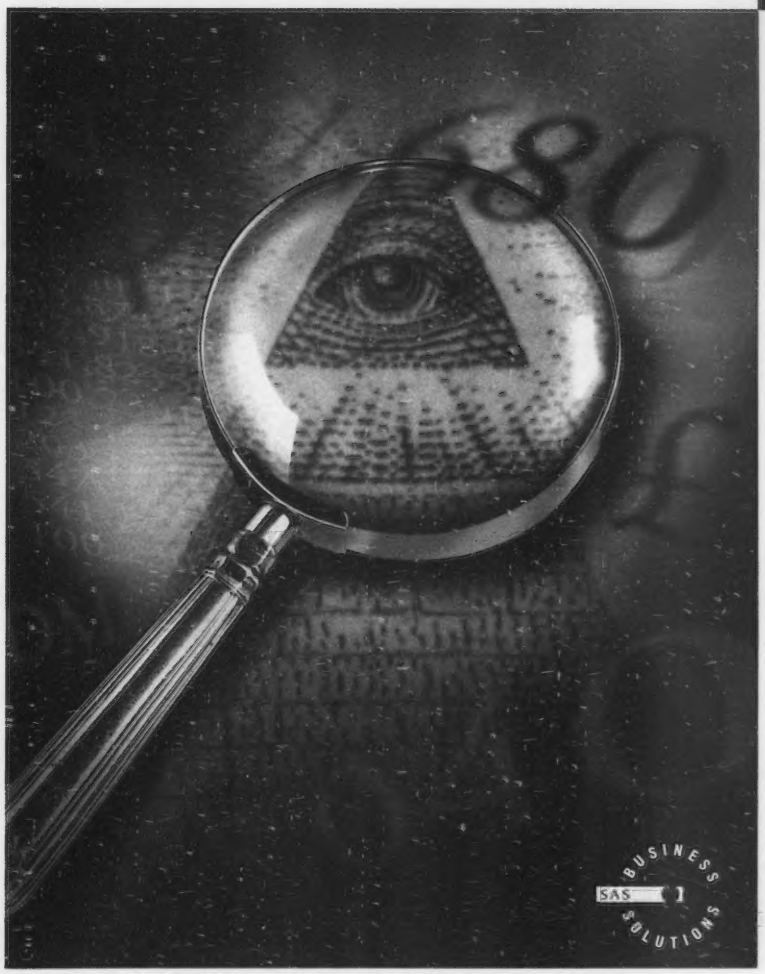

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A more stable GroupWise heads for beta

By Barb Cole-Gomolski

NOVELL, INC. this week will begin beta-testing an upgrade of its GroupWise messaging system that is expected to be significantly more stable than recent versions.

Several beta testers said GroupWise 5.2, which will ship in September, is already more stable than two previous Novell upgrades. Version 5.0 was so full of bugs that most firms passed it up. Version 5.1, although better than 5.0, still had many bugs, users said.

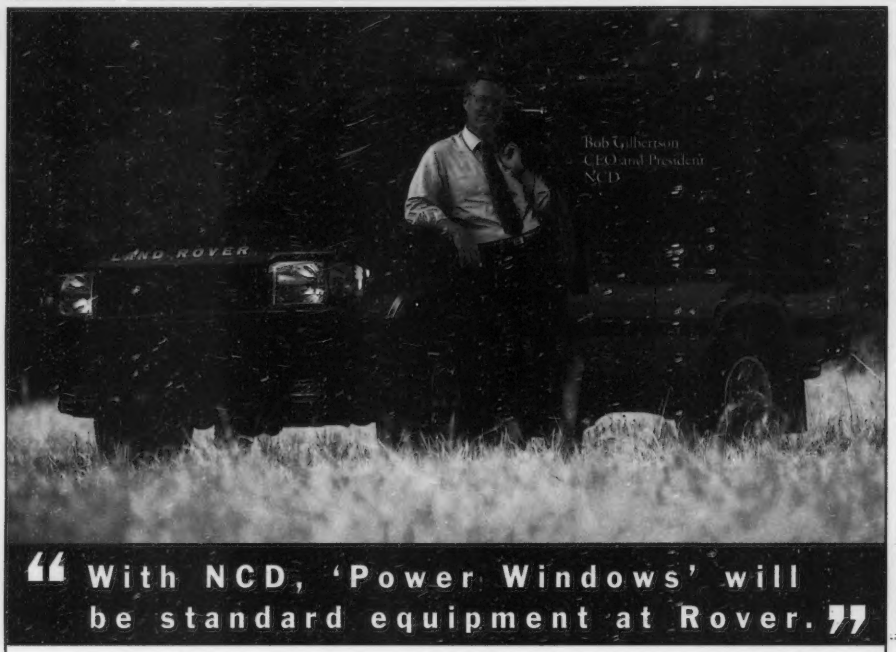
"The big thing this release brings us is stability," said Jeff Franks, a technical specialist at a Midwest retailer that has 14,000 GroupWise seats.

GroupWise 5.2 also supports key Internet mail protocols, including Post Office Protocol 3 and Internet Message Access Protocol 4. That support will allow user sites to deploy World Wide Web browsers as mail clients. Users previously could access GroupWise from a Web browser, but they couldn't send attachments or share calendar information.

That means the University of Utah Hospitals and Clinics, in Salt Lake City, can dump an assortment of Internet mail clients and standardize on GroupWise, said David Druker, a senior systems analyst at the institution.

The much-anticipated Internet hooks also help put GroupWise on an equal footing with Lotus Notes and Microsoft Corp.'s Exchange, said Shilpa Agarwal, an analyst at Giga Information Group in Cambridge, Mass.

GroupWise 5.2 will include new document management and workflow capabilities and a new administration tool called GroupWise Monitor. □



"With NCD, 'Power Windows' will be standard equipment at Rover."

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Rover is planning to use NCD's WinCenter Pro™ running on NT as a "Microsoft® application server," allowing each single desktop device to easily access Windows apps. The user simply clicks on the application icon and the server delivers the application. "While there will always be a place for the PC, we're impressed by this desktop solution which makes it simple for NC and workstation users to access all the MS-based applications" said Ward.

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IBM service eases OS/2 Warp 4 upgrade

By Laura DiDio

IBM LAST WEEK launched its Rapid Deployment Services, offering to help existing OS/2 Warp and Warp Server customers easily migrate to Version 4 of its operating systems.

The foundation of Rapid Deployment Services is IBM's Rapid Deployment Team (RDT), a group of 25 OS/2 Warp engineers based at the company's Austin, Texas, facility.

Working with IBM Global Services, the OS/2 engineers will provide custom network design, implementation, application development, integration, testing and upgrade services to Warp users, said Jim Koerner, IBM's manager of marketing campaigns. IBM will add engineers to the unit based on demand.

Longtime OS/2 user Sherrea Wilson, vice president of MIS at airline caterer Dobbs International, Inc. in Memphis, recently used IBM's RDT engineers for a rollout of OS/2 Warp 4.

Wilson said Dobbs upgraded from Windows 3.1 to OS/2 Warp 3 on its own. But when the upgrade was completed last month, the company learned it had to upgrade to OS/2 Warp 4. "It took us 18 months to upgrade by ourselves. Using [the] Rapid Deployment Service will cut our migration time from 18 months to four months," she said. □

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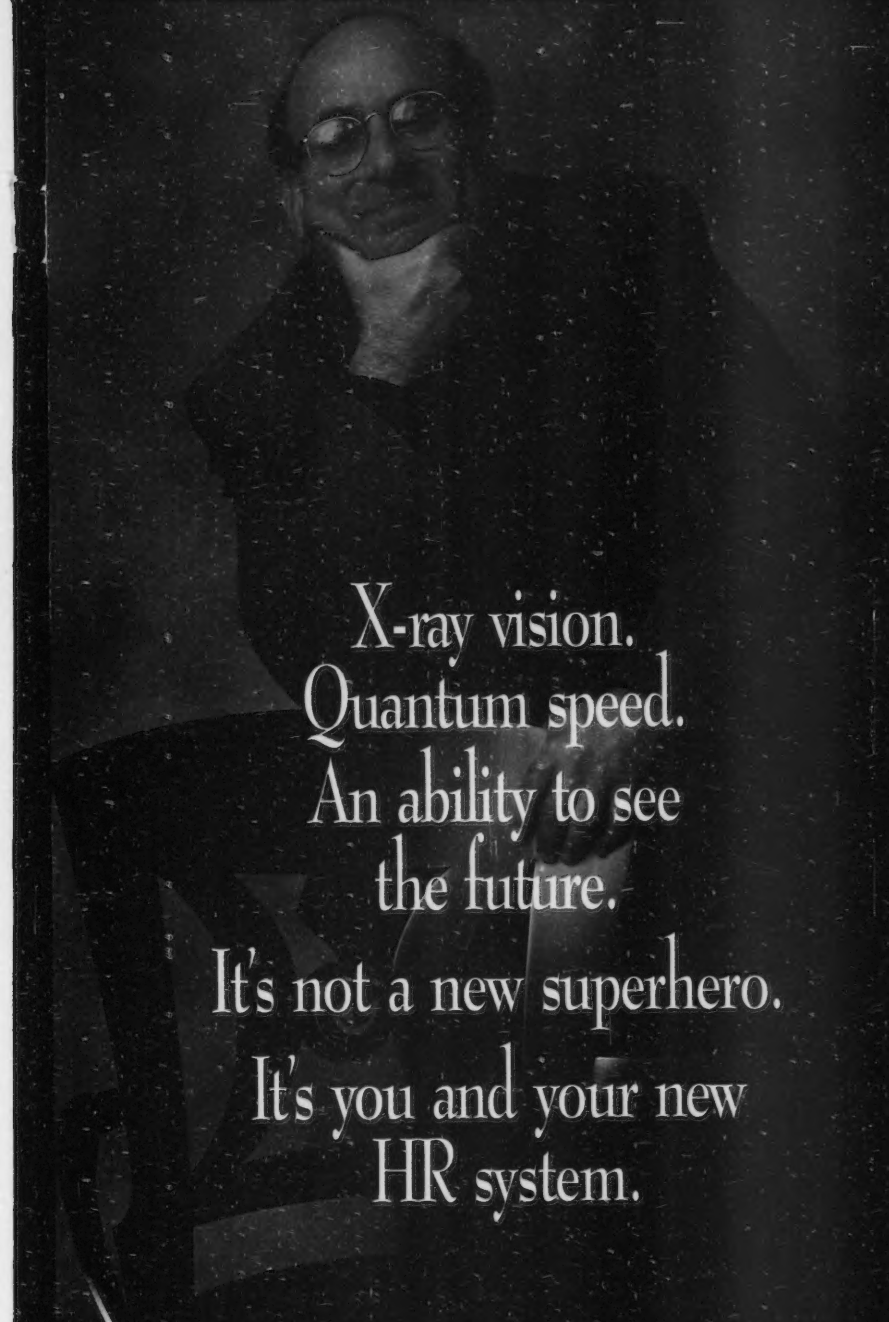

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WHEN TRAGEDY STRIKES

If this happens ...	Do	Don't
Hard drive groans or squeaks	Copy all accessible data to floppy disks; shut down	Reboot or open the drive
Parts burn or melt	Unplug; bring to a professional who has a clean room for servicing	Try to use it
Parts get wet	Unplug; bring to a professional who has a clean room for servicing	Try to dry it
"Sad Mac" icon appears (Macintosh only)	Rewrite device driver with software used to format the disk	Initialize the disk
Virus attacks*	Use special antivirus software	Reformat drive or floppy disks

* Possible symptoms: blank screen, unfamiliar error message

Source: DriveSavers, Inc., Novato, Calif.; Ontrack Data International, Inc., Eden Prairie, Minn.

Anger, panic, fear follow data crises

CONTINUED FROM PAGE 1

ple, hadn't remembered to back up his data.

That isn't just psychobabble, according to computer and psychology experts.

The emotional trauma after the loss of critical data can be disruptive at work and at home. Users may experience sleeplessness, stomach problems and lingering guilt for months afterward. Some panicky users benefit from counseling in much the same way as someone who has witnessed a traumatic event such as a bombing or fire.

TRAUMATIC EVENT

Psychologists define a traumatic event as one that is unexpected and uncontrollable. It can overwhelm a victim's sense of safety and can leave a person feeling vulnerable.

By that definition, disk failures and other surprise computer problems certainly qualify as trauma, said Mark D. Lerner, president of the New York-based American Academy of Experts in Traumatic Stress. That is especially so if crucial or irreplaceable data disappears, he said.

At a time when PC and laptop users are increasingly responsible for backing up their own data, the situation appears to be getting worse.

For example, revenue at data-recovery firm Ontrack Data International, Inc. in Eden Prairie, Minn., has more than doubled since 1994 to $26.8 million last year. And Chatsworth, Calif.-based Peripheral Repair Corp. takes in about $20,000 per month from recovery jobs.

> Be prepared to spend $1,200 to $2,400 for a two-day recovery job of 1G byte of Windows 95 data, DriveSavers advised.

User calls to information systems help desks also are rising. Of 873 help desk managers polled last year, 81% said call volume is increasing, according to a survey by the Help Desk Institute in Colorado Springs. That's up from 65% five years ago.

But the help desk doesn't hear about every data crisis. Some users deliberately avoid the corporate help line because they don't want anyone at their company to know they are in trouble.

For example, one Fortune 500 chief financial officer lost five years' worth of accounting and stockholder data in a computer crash. DriveSavers won't reveal the man's name or company because "he's been through enough," said Scott Gaidano, DriveSavers' president.

Although the CFO's West Coast company conscientiously backed up its Unix-based financial data twice per day, it evidently never tested the faulty backup media. So when a hard drive crashed one Friday afternoon, there was no safety net.

"He was crazed," Gaidano said. The executive believed his job and his life would be over if he didn't get the data back. "When he was driving over the Golden Gate bridge, he said he was thinking that it might be a one-way trip."

Happily, the CFO got all his data back, and in time for a Monday morning presentation.

But such panic and hopelessness are common in many traumas, experts said.

The jittery CFO, for example, experienced three of the four common aftereffects of a crisis: panic, fear and guilt. The next stage is usually anger, but this man was stuck in the fearful zone, imagining the most horrid what-if scenarios, Stange explained.

Survivors of a data loss may even have flashbacks. "You see yourself as in a movie — pushing that button and making the mistake," Lerner said.

Most data-recovery companies don't have in-house psychologists. The very idea was new to Steve Lewis, editor of the *Disaster Recovery Yellow Pages* in Newton, Mass. "But believe me, I've seen instances where people could have used a good therapy session," he said.

SUCCESS STORIES

Stange handles her most frightened customers by telling them stories about others who overcame dire data straits, such as the one about the DriveSavers customer who bravely dove in to the Amazon River to retrieve her sunken data.

The woman, half of a husband-and-wife juggling team, had only minutes to evacuate a cruise ship as it took on water. Down went the couple's laptop with six months' worth of business information.

"When no one would help her, she rented scuba gear herself and swam down through the submerged hallways of the ship to rescue her laptop," Stange said.

But what most soothes the basket-case callers, Stange said, is the fact that DriveSavers was able to retrieve all the woman's data.

Hearing that is "like getting a great prognosis from a doctor," she said.

Stange has two treatment modes: techie talk and touchy talk.

Power users generally feel safer when they hear Stange demonstrate a working knowledge of computers. "I can talk about read/write heads and actuators if that's what they want," she said.

But other callers don't have Clue No. 1 about the internal workings of a hard drive. They need empathy. And in that case, Stange just listens. "There's always an amazing story that happened just 20 minutes before they call," she said.

The IS director at a New York book publisher needed a bit of both.

The company's catalog team had been working 24 hours per day for two weeks to meet a deadline. One designer would walk away from a PC, and another would sit right down in the warm chair. The mad pace left no time for backups.

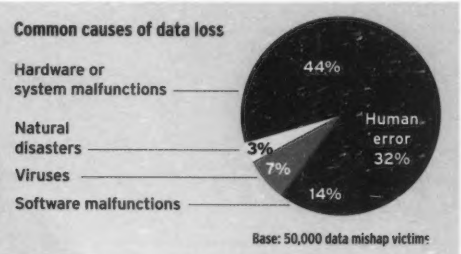
You know what came next: The team's 9G-byte hard drive crashed.

The IS leader was so worried about the broken drive, she couldn't bear to send it to DriveSavers via Federal Express. Instead, she sat with it on her lap on a flight to San Francisco, then drove it the remaining 40 miles to DriveSavers' office.

"She did amazingly well, with a calm demeanor," Stange said. "But she still didn't want to be out of reach of that drive."

The next day, the IS manager was elated to be on a plane home with all her data.

"What was really returned to her," Stange said, "was her blood, sweat and tears." □



Source: Ontrack Data International, Inc., Eden Prairie, Minn.

When IS won't do it

No interest in fumbling with tape drives? Lack the discipline to do your own backups? Internet-based services have begun sprouting up that let individual PC users automatically make backup copies of their hard drives.

Small businesses without IS departments are usually the targeted customer, but single or remote corporate users can buy in as well.

For example, at San Diego-based @Backup, Inc., the process goes like this:

- **Customers with Windows 95 or Windows 3.1 on their PCs must download @Backup software to encrypt the backup data.**
- **Backup copies are sent to @Backup server "vaults" via private phone lines every night at a specified time.**
- **User credit cards are charged monthly, depending on the amount of data saved. Prices are $19.95 per month to back up any amount of data over the Internet or $29.95 to use @Backup's private network. An extra $5 per month will buy a nightly virus scan.**

The catch comes when you want to retrieve backed-up data. The first 5M bytes are free, but @Backup charges 25 cents for each megabyte thereafter.

Be careful, though. Because these services are relatively easy to set up, some companies have emerged and then disappeared in the space of a few months. Online search engines last week turned up a handful of Internet addresses for companies that apparently don't exist anymore.

— Kim S. Nash

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Computer Industry

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• Targets tech-savvy candidates

Industry PAC flexes political muscle

By Matt Hamblen

JUST HOW powerful a player in big-time politics will the newly formed Technology Network political action committee (PAC) be?

One indication: TechNet members held a Silicon Valley dinner reception last week for possible Republican presidential contender Jack Kemp.

Kemp and group members talked about free trade and taxes as well as TechNet's core concerns of finding ways to curb frivolous shareholder lawsuits and fostering industry collaborations with schools, according to TechNet staff members.

TechNet members have also been in touch with Vice President Al Gore, who is expected to make a bid for the presidency.

It isn't clear whether TechNet will endorse a presidential candidate, but members and staffers said they will raise funds to donate to federal and state campaigns in hopes of electing officials from both major parties who understand the concerns of high-technology companies.

HEAVY HITTERS

Launched July 8, TechNet, in Palo Alto, Calif., cites a heady list of computer industry CEOs as members, including Netscape Communications Corp. President and CEO Jim Barksdale as co-chairman. John Doerr, a partner at venture capitalist firm Kleiner Perkins Caufield & Byers in Menlo Park, Calif., is the other co-chairman.

TechNet will differentiate itself from other computer-related trade associations in several ways, starting with support for a wide range of high-tech companies, including pharmaceutical vendors, biotechnology companies and software and hardware vendors, staffers said.

TechNet won't try to replace the Washington lobbying skills of the American Electronics Association (AEA) in Santa Clara, Calif., said Dan Schnur, Republican political director at TechNet. There is also a Democratic political director.

"AEA is already a very effective lobbying presence; our goal is to add a political presence," Schnur said. "One of the best ways is to get involved in campaigns. If we work to elect candidates to office that understand the technology community's agenda, then we've helped."

Although PACs are limited to $10,000 per candidate at the federal level, limits on "soft" contributions, such as dinners and schmoozefests, are unregulated. That gives TechNet the opportunity to bring in candidates to meet with high-tech CEOs, PAC observers said.

"We're going to contribute money, and it's going to be bipartisan, but it's way too early to know how much," said founding member Floyd Kvamme at Kleiner Perkins.

Kvamme said high-tech companies are responsible for a large part of the nation's growth, and government has taken an interest in a wide range of issues of interest to the industry. "We feel we have to be exposed to elected leaders so they know what we do. ... When you think you're on to something that's right, you want to evangelize," he said.

Groups that watch PACs, such as Common Cause, have taken notice of the TechNet PAC. "In general, we think it is unfortunate that the high-technology industry needs to influence the political process through the use of money," said Ed Davis, a lobbyist at Common Cause. "This is money buying access and influence." □

COMPUTER INDUSTRY LOBBYISTS

Name of group	Lobbying area
• Technology Network	• PAC that raises funds and supports candidates. It will lobby to reform education and curb frivolous shareholder lawsuits.
• American Electronics Association	• Lobbies Congress on issues such as tax reform.
• Society for Information Management	• Recently lobbied to stop efforts to amend the Uniform Commercial Code.

Cisco signs on

Cisco Systems, Inc. in San Jose, Calif., decided to join TechNet to build relationships with elected officials, according to Laura Ipsen, manager of government affairs at Cisco.

"We can't exist as an island in Silicon Valley," Ipsen said. "Our industry has a lot of say in building the economy." She said TechNet will support candidates but "will not throw around a lot of money."

Cisco is also a member of the AEA but joined TechNet because it sees the new group as having a "long-term vision." The AEA is more "issue-specific," Ipsen said.

Ipsen said Cisco CEO John Chambers is very supportive of TechNet's founding issues, including efforts to limit frivolous shareholder lawsuits and reform of the nation's education system.

"Cisco can't even stay in California unless education improves," she said.

— Matt Hamblen

Congress mulls a slew of bills concerning high-tech issues. In Depth, page 92

Apple's latest loss is $56M; not as deep as expected

By Wylie Wong and Kim Girard

APPLE COMPUTER, INC. announced a third-quarter loss of $56 million last week, which was less damaging than the $70 million to $100 million loss that analysts expected.

Apple's cost cutting has helped improve its financial situation, but the company's sales remain weak, said Rob Enderle, an analyst at Cambridge, Mass.-based Giga Information Group. Apple's sales dropped to $1.7 billion from $2.18 billion a year earlier.

James Staten, an analyst at Dataquest in San Jose, Calif., said the latest financial results are both encouraging and discouraging.

Revenue from Japan is up 60% from last quarter, consumer PowerPC sales rose 27% and business desktop PC sales were up 32%.

But PowerBook sales worldwide dropped 29% from last quarter, Staten said.

"That's discouraging because we've seen almost two full years without having quality notebooks available. You would think that would build a certain level of pent-up demand there," he said.

"With [PowerBook sales] down this quarter, that means Apple has satisfied the pent-up demand in three months. What that says is the pent-up demand is gone. [Users] have moved to Wintel or [aren't] buying what's being offered," Staten said.

To return to profitability, Apple needs to give away more of the market to Macintosh clone makers Power Computing Corp. and Umax Computer Corp., Staten said. "You want licensees to be profitable, see a reason to invest in the market and see that they can grow unit shipments," he said.

Otherwise, Staten said, the clone makers see little growth opportunities, and that is why Power Computing and Umax are now starting to offer Windows-based machines.

Apple officials said the company's operating expenses this past quarter were $408 million, down $81 million from the previous quarter.

"Our financial goals are to continue to reduce operating expenses and to return the company to profitability," said Apple Chief Financial Officer and acting CEO Fred Anderson. □

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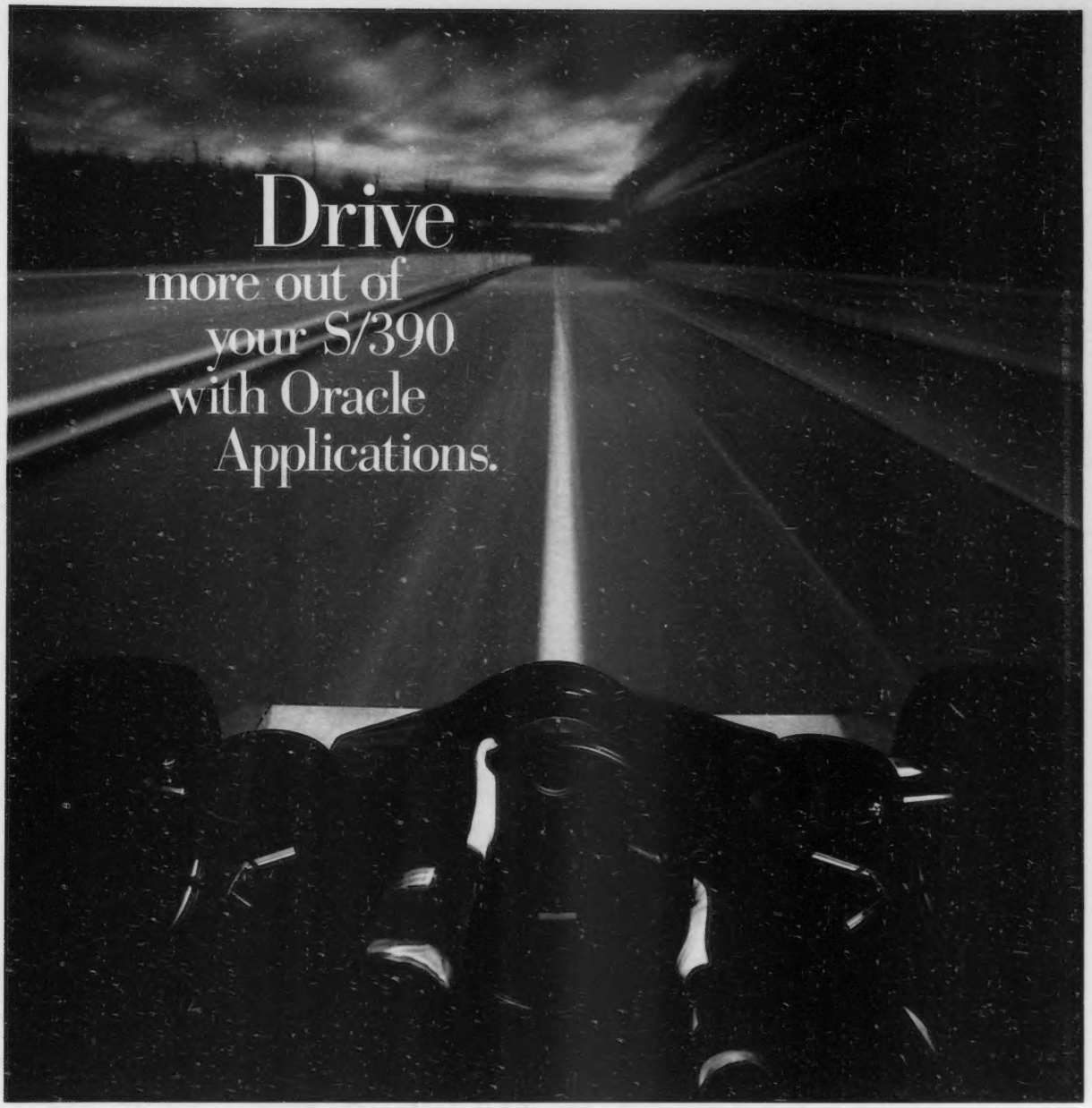

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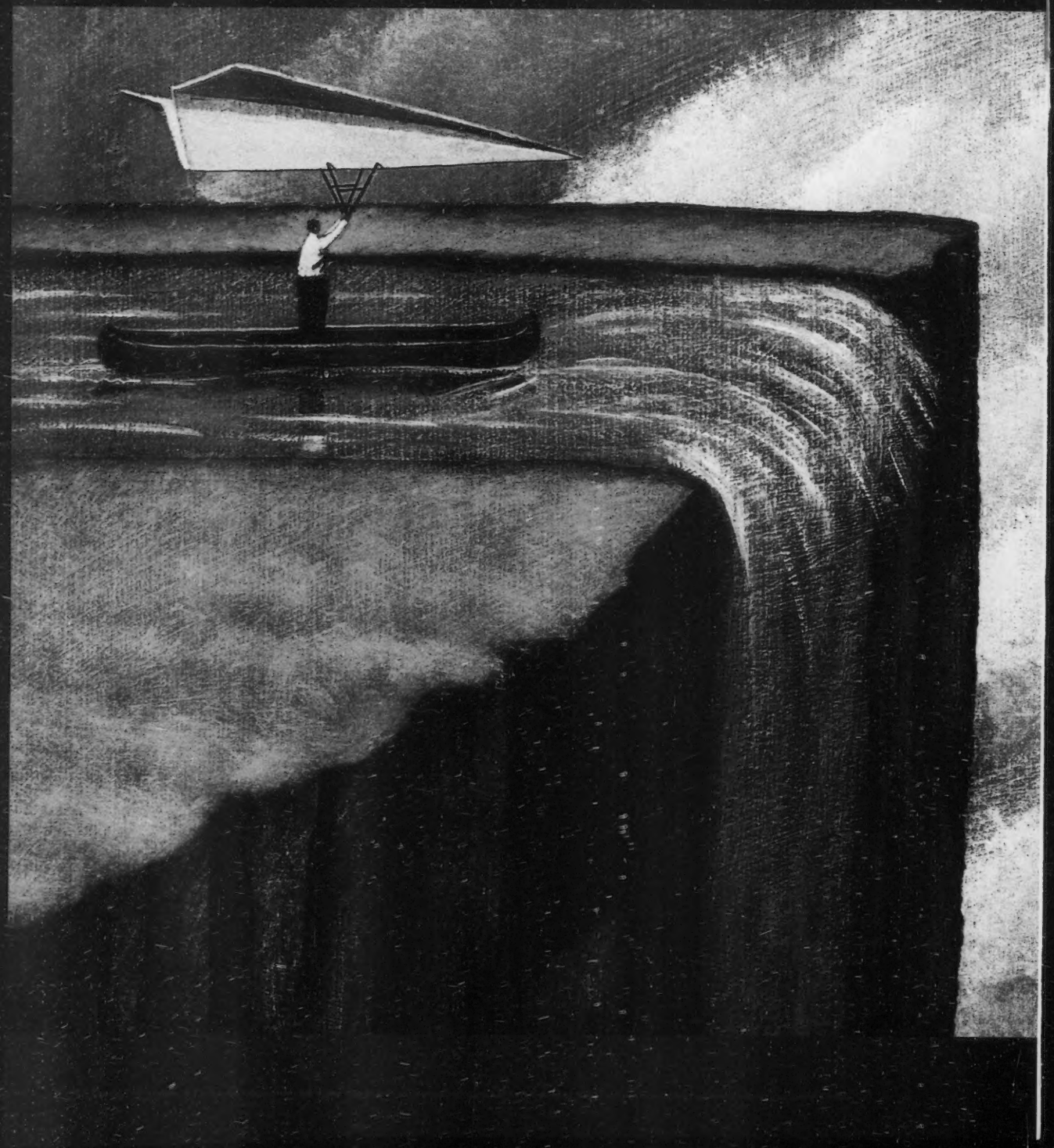

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OPINION

Poison Apple? If you're an Apple fan, be afraid. Be very afraid.

Because guess who's selecting the next CEO? That's right, it's the same crack team that brought you Michael Spindler and Gilbert Amelio.

You remember Spindler — he was given the heave-ho (and $3 million) when he failed to sell the company to Sun. Astoundingly, the A-team then went out and hired Amelio without ever conducting a formal job search or checking his references at National Semiconductor.

Apparently, the Apple board was impressed with Amelio's stature as a turnaround expert, a reputation based primarily on a book penned by none other than — you guessed it — Amelio himself.

If the Apple board had actually checked, it might have learned that National Semiconductor's founder, Charles Sporck, is on record as saying he regrets ever hiring Amelio. Another National Semiconductor board member has expressed similar sentiments.

Now Amelio is getting shoved aside (with $7 million). It seems the Apple board agreed to a contract in which Amelio, if fired, would receive double his full salary through the year 2000. Nice pay if you can get it.

The current Apple search team inspires little confidence. It includes co-founder A. C. Markkula, who selected Spindler and Amelio; Apple CFO Fred Anderson; and Edgar S. Woolard Jr., chairman of Du Pont.

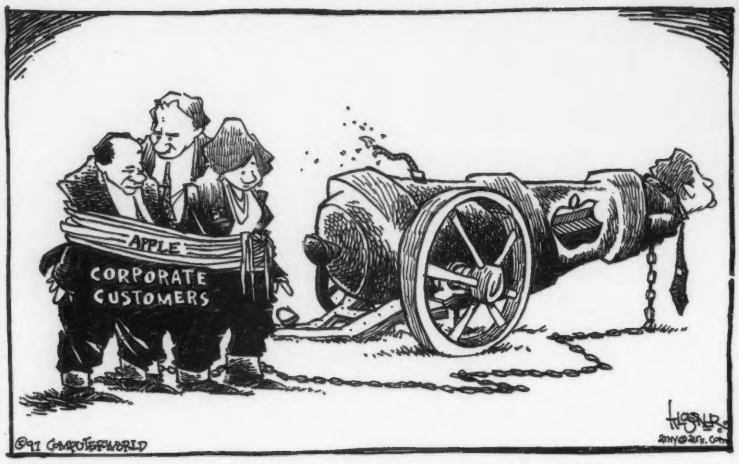
The final member is Apple co-founder and former CEO Steve Jobs, who claims he isn't a candidate but would be a popular choice among the Apple-rati.

But Apple is too far gone for a conventional choice. Apple needs somebody who can shake Cupertino — like a 7.5 on the Richter scale — somebody with no emotional attachment to Apple, somebody who can come in and make cold, hardheaded decisions.

My choice? Turnaround expert Al "Chainsaw" Dunlap. He saved Scott Paper; maybe he can save Apple.

Neal Weinberg

Neal Weinberg, *assistant news editor*
Internet: *neal_weinberg@cw.com*



LETTERS

The benefits of Radio Shack's customer database

As a long-term part-time employee at Radio Shack, I have heard the complaints about Tandy's policy to request the name and address of each customer at every sale.

I have heard these complaints in person at the store many times and read it in a letter from Ann Hearn [Letters, CW, June 2]. I have even heard it humorously referred to in an episode of NBC's *Seinfeld*.

> Not every big company is sinister in its collection of customer information.

Not every big company is sinister in its collection of this information. Tandy has never, and will never, sell or otherwise distribute any part of its customer database.

Sure, Radio Shack uses [the database] to track customer interests, but that isn't all. Did you ever notice that Radio Shack products don't contain warranty registration cards? That registration process is automatic — provided that you offer your correct name and address.

As one of the few Radio Shack employees with a 100% name and address collection record (yes, they track that, too), I happily request that if you don't wish to tell me who you are, please don't come to my store.

Instead, go to one of those big, cold, impersonal stores on the busiest street in town. Radio Shack was designed to be personal and small.

Steve Mol
Radio Shack
Grand Rapids, Mich.

Spammer's reasoning doesn't convince readers

It was nice to see that *Computerworld* gave equal time to Sanford Wallace for his justification in being "The king of spam" [CW, June 16]. It's hard to understand how Cyberpromotions could expect to earn $3 million to $5 million in revenue this year. I can't be the only E-mail user who won't consider purchasing anything from a company that sends me spam. Wallace's analogy of MCI calling in the middle of the night sends the same message. I won't buy from telemarketers who invade the privacy of my home any more than I would buy from spammers who invade the privacy of my E-mail box.

Jim Walker
Auburn, Maine

I was disappointed that the article didn't include any research on the veracity of Wallace's claims and did not give his background. Before he was in the business of advertising porn and pyramids via E-mail, he was known as the Junk-fax King. In fact, it was Wallace who singlehandedly motivated Congress to outlaw junk faxes.

Wallace claims his lists are clean and prequalified. That is a bare-faced lie. When I demanded to be removed, his staff sanctimoniously told me that they don't censor their customers. He now provides a purported "remove" address, but sending replies there doesn't get you removed and sometimes gets you more junk E-mail.

As for his customers not getting any complaints, that's because of the forged headers that are Wallace's stock in trade. Your reporter didn't call out Wallace on his attempt to identify direct mail with unsolicited mail.

The Internet is full of legitimate businesses that use direct mail, but they mail only to people who ask to be on their lists.

Shmuel (Seymour J.) Metz
Annandale, Va.
shmuel@os2bbs.com

Disaster plans' many parts

In regard to "Trucker speeds data recovery" [CW, May 26], I need to emphasize that Watkins Motor Lines' fail-over disaster recovery plan is a good plan, but it is in no way a replacement for third-party backup, archiving and recovery software that uses tape libraries. A lot of firms are taking advantage of both technologies by executing automated, high-speed online backups of the stand-by server, thereby minimizing the potential impact on user activity and ensuring their ability to recover important data in the future.

Andy Gup
Product manager
Spectra Logic Corp.
AndrewG@spectralogic.com

More letters, page 40

Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

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80. Manufacturer of Computers, Computer-Related Systems or Peripherals
85. Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
90. Computer/Peripheral Dealer/Dist./ Retailer
95. Other_____ (Please Specify)

2. TITLE/FUNCTION (Circle one)
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21. Dir./Mgr. MIS Services, Information Center
22. Dir./Mgr. Network Sys., Data/Tele. Comm., LAN Mgr./PC Mgr., Tech. Planning, Administrative Services
23. Dir./Mgr. Sys. Development, System Architecture
31. Programming Management, Software Developers
41. Engineering, Scientific, R&D, Tech. Management
60. Sys. Integrators/VARs/Consulting Management

CORPORATE MANAGEMENT
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12. Vice President, Asst. Vice President
13. Treasurer, Controller, Financial Officer

DEPARTMENTAL MANAGEMENT
51. Sales & Mktg. Management
70. Medical, Legal, Accounting Mgt.

OTHER PROFESSIONAL MANAGEMENT
80. Information Centers/Libraries, Educators, Journalists, Students
90. Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply.)
Operating Systems
(a) Solaris (e) Mac OS
(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep
App. Development Products ❒ Yes ❒ No
Networking Products ❒ Yes ❒ No
Intranet Products ❒ Yes ❒ No

4. Which of the following products do you buy, specify, recommend or approve the purchase of? (Check all that apply.)
(a) ❒ Internet software
(b) ❒ Internet browsers
(c) ❒ Web authoring/development tools

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40. Wholesale/Retail/Trade
50. Business Service (except DP)
60. Government - State/Federal/Local
65. Communications Systems/Public Utilities/Transportation
70. Mining/Construction/Petroleum/ Refining/Agriculture
80. Manufacturer of Computers, Computer-Related Systems or Peripherals
85. Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
90. Computer/Peripheral Dealer/Dist./ Retailer
95. Other_____ (Please Specify)

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22. Dir./Mgr. Network Sys., Data/Tele. Comm., LAN Mgr./PC Mgr., Tech. Planning, Administrative Services
23. Dir./Mgr. Sys. Development, System Architecture
31. Programming Management, Software Developers
41. Engineering, Scientific, R&D, Tech. Management
60. Sys. Integrators/VARs/Consulting Management

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(a) Solaris (e) Mac OS
(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep
App. Development Products ❒ Yes ❒ No
Networking Products ❒ Yes ❒ No
Intranet Products ❒ Yes ❒ No

4. Which of the following products do you buy, specify, recommend or approve the purchase of? (Check all that apply.)
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(b) ❒ Internet browsers
(c) ❒ Web authoring/development tools

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Privacy, individual services are in the smart cards

Patricia B. Seybold

What's the best way to amaze and delight your customers and business partners who do business with you over the Web? Tailor products, services and information to each individual. Yet many people are worried about having their privacy invaded, so they react negatively to proactive personalization.

Wouldn't you like to have control over what personal information vendors collect?

What's the solution? New profiling and privacy standards are emerging. And smart cards are becoming more common. The resulting combination will let us control the information that businesses gather about us and decrease the number of log-on ID's and plastic cards we all juggle today.

The proposed Open Profiling Standard (OPS) was designed to deal with two interrelated concerns: the need to protect individuals' privacy and the need to offer custom-tailored information, products and services via the Web.

OPS has gained the endorsement of more than 100 companies, including such unlikely bedfellows as Sun, IBM and Microsoft. Not only does OPS define a standard for how personal profile information can be exchanged, it also incorporates a public policy for sharing personal information in cyberspace based on three principles: control of the profile information by the person whose profile it is, informed consent (consumers are notified in advance before any of their profile information is shared) and value exchange (Web sites should offer compensation, discounts or benefits in exchange for personal profile information).

That's all very promising, but I don't think we should limit the scope of OPS to Internet initiatives. What about the profiles many non-Web businesses keep on file? Wouldn't you like to have total control over what information they collect, how often they update it and what they can do with it? I would.

Here's how it should look: I want to enter and update my personal profile information once, at a single location. No longer will I need to fill in my name and address information thousands of times per year. I'll just insert my smart card into my phone, laptop or kiosk and transfer the required information.

Each time, I decide which bits of information to transfer. Every business I deal with will get the basics. Only a few will get my home telephone number or my passport number. I'd reserve special bits of information for companies to use once we've mutually established a "need to know." My favorite clothing store needs my current dress size. My favorite bookstore should know my favorite authors and topics.

What a relief for my bulging wallet. To have a single card that would identify me to my bank, the airlines I fly, the car rental company, the supermarket and the dry cleaners.

This card would connect these businesses to the up-to-date profile information they're each allowed to have, and it would give me access to a record of the transactions I've made with their firms. Doctors and hospitals would use my smart card to link to all the clinical data that's been collected on my behalf. But none of these organizations would have my permission to give or sell any of this information to anyone else without my explicit consent. If I lost my smart card, it would be magically restored to me with all my private information intact.

That's my personal nirvana. I don't really care what technologies are used behind the scenes to achieve it as long as I'm sure that I have complete control over the privacy and integrity of my personal information. What about you? □

Seybold is president of Patricia Seybold Group in Boston. Her Internet address is pseybold@psgroup.com.

Web-based training can help IT organizations

John Gantz

Training is to successful IT implementations as location is to real estate. But training usually is given about as much high-level attention as the selection of toner for the office copier.

Project emergencies cut into IT staff training time, end users skip classes, and "train the trainer" programs crash and burn. (The only organization I've seen that took training seriously was the U.S. military. I couldn't wait to get out.)

Here comes the Web to the rescue — at a trot, if not a run.

As a market, Web-based training is in its infancy. According to International Data Corp. (IDC), only about $100 million of the $7 billion that U.S. companies pay for IT training and education was spent on Web-based training last year. But that amount will grow more than twentyfold in five years, and companies that have struggled with various training media for years may find that the Web offers a breakthrough.

IDC says migration to Web-based training will be especially brisk this year and next, as course material proliferates and users become familiar with the new medium.

Most training — about 65%, according to a recent IDC survey of business unit and IT managers — is still instructor-led. Only 20% is technology-based, and the rest is paper-based. Even by year's end, Web-based training will be less than 10% of technology-based training (most of it uses CD-ROMs, PCs and videotapes).

But think a moment. Web-based training can offer a nice combination of the interaction available with instructor-led training with the self-pacing and multimedia of CD-ROM and computer-based training. Plus, it can cost less than either form. Whether offered over the Internet or an intranet, Web-based training opens up access to remote users, home workers and international offices in a way other training doesn't. It also allows hot links to other resources, not to mention better version control and instant updating.

According to the IDC survey, the biggest obstacle to Web-based training is providing reliable and fast access to users. But that doesn't seem to be slowing new Internet users or the growth in intranets. A bigger obstacle may be how fast the major IT vendors jump on the Web bandwagon and how rich their offerings are.

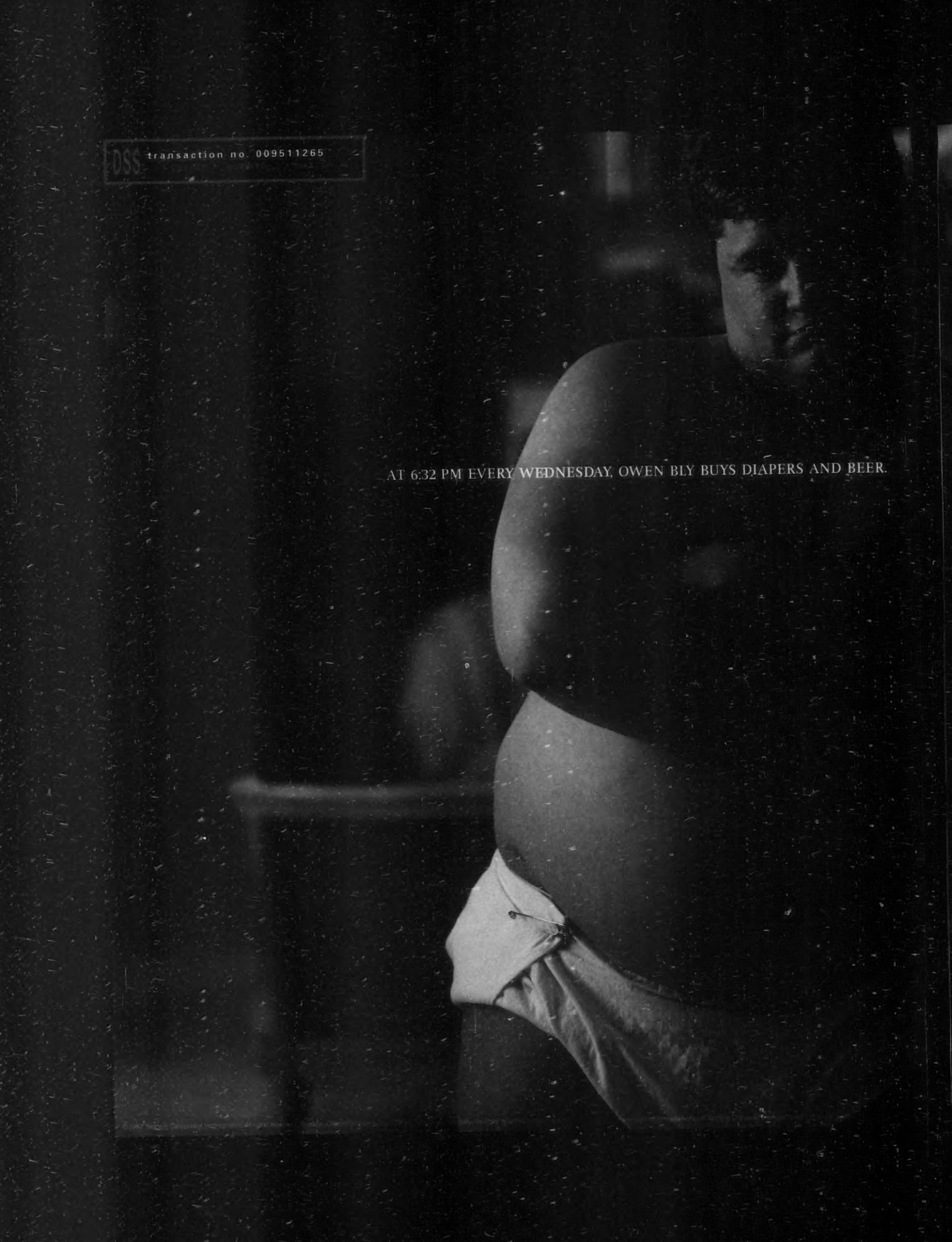
Microsoft, for example, has the Microsoft Online Institute, but only a few dozen training providers (courseware developers and training resellers) participate. Lotus' LearningSpace, only announced last fall and Web-enabled more recently, is just cranking up. And Oracle's Oracle Learning Architecture became available on the Web last December. Third-party training providers such as CBT Systems, Gartner Group, Logical Operations, National Education Training Group and Ziff-Davis only recently have waded into the Web waters.

Web-based training shares the benefits of instructor-led and computer-based training, but it's cheaper.

My recommendation is to jump on Web-based training as fast as you can. Take the trouble to learn what's available. Put your own training up on Web sites (if you're slick, with CD-ROM adjuncts). What do you have to lose, really? A little courseware redesign time? Some space on the server? Phone charges for students?

Every hour of training saves three hours of help desk calls, so any technique that even incrementally increases the effectiveness or acceptance of training is worth it. I think Web-based training can work. If my kids can go on the Web regularly to do *their* homework, maybe your IT staff and end users can, too. □

Gantz is senior vice president at IDC in Framingham, Mass. His Internet address is jgantz@idcresearch.com.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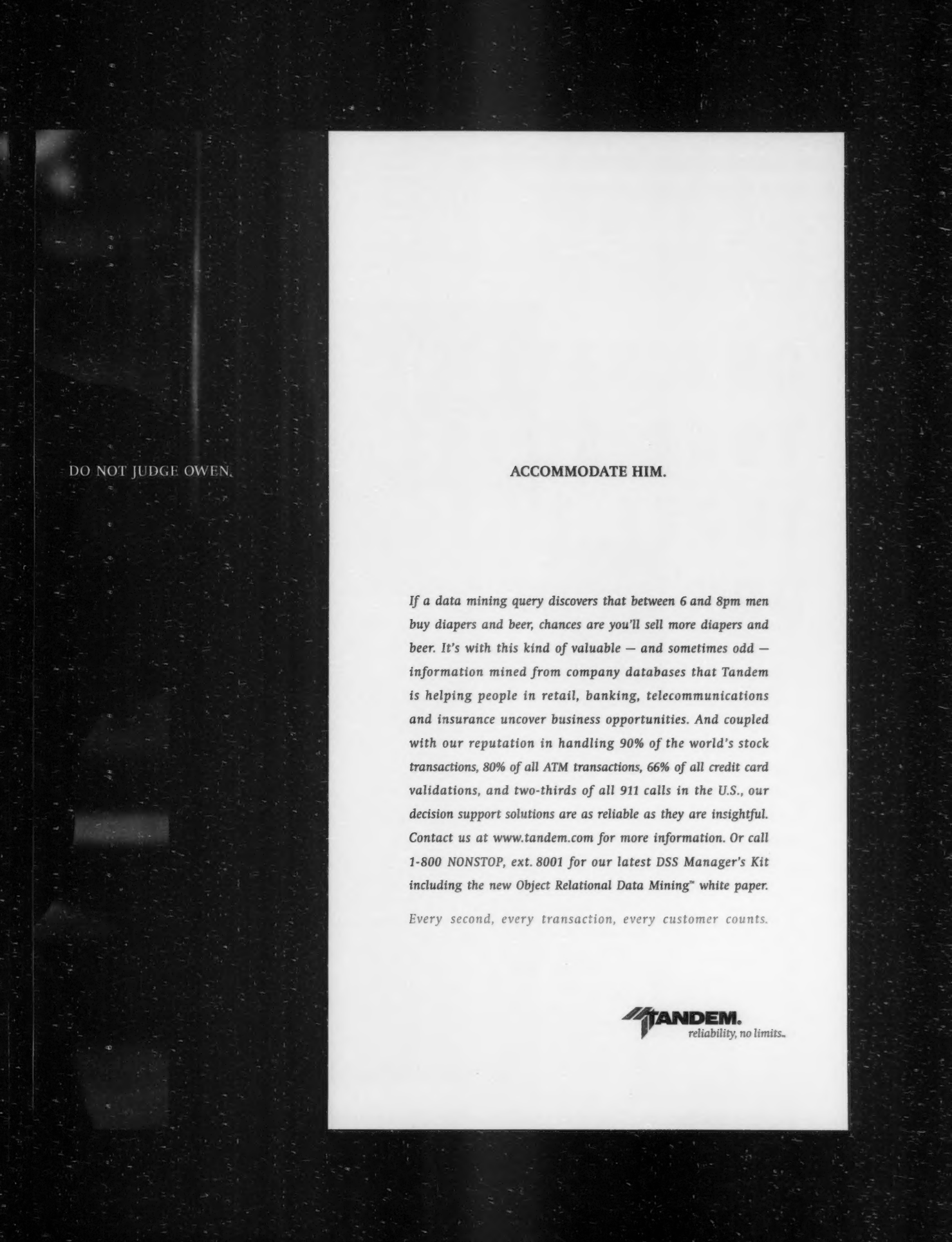

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LETTERS

Disadvantages still exist for women in many environments

THANK YOU FOR your provocative editorial on women in IS ["Mentor this!" CW, June 23]. While it is true that many of the topics commonly discussed — such as the need for mentoring — come to us surrounded by what you call psychobabble, I don't think you can legitimately claim women aren't at a disadvantage in many work environments.

If I read you correctly, you think that because one-third of the women polled by Women in Technology International (WITI) claim they have an equal opportunity to become CEO, it's up to this optimistic group to climb the glass ladder for all of us.

Even if this group were successful, it wouldn't negate the fact that the median wage of women in the U.S. still lags behind that of men in IS and other corporate divisions.

It also wouldn't change the fact that women form an inexcusably small percentage of corporate officers nationwide.

You're right about one thing, though. We need less whining and more action to turn these statistics around.

Wendy Vandame
Boonton, N.J.

Computerworld June 23, 1997 (www.computerworld.com)

OPINION

Mentor this! Like many of the women involved in the high-tech field,

Women absolutely must take charge to succeed in careers

THANK YOU for the opinions set forth in your editorial. I am a 30-year-old woman who works as a systems consultant in the Atlanta area. I started my career as a temporary administrative assistant to an IS director. If I had not taken the initiative of asking questions and getting to know the people I worked with, I would not be where I am today.

I did not wait for a mentor but learned a variety of skills from several different people — everyone from a LAN administrator to a billing systems manager and director of the department.

The director I once worked for advised me to always keep in touch with those you have worked with who are good at what they do. I have taken this advice to heart, and it has paid off through a network of friends and business associates who share information.

I may not hold a managerial title, but if asked whether or not I believe I have an equal opportunity to be a CEO, CIO or whatever, I would have to say yes.

Lisa Minder
Consultant
Atlanta

I WANTED TO OFFER a hearty "Amen" of agreement with your column about women in the high-tech field.

As a male IS professional, I greatly respect your determination and self-reliance. It is a refreshing contrast to the perpetual whining about glass ceilings and the male dominance of the IS field that groups like WITI seem obsessed with.

When your attitude becomes widespread, there will be more women in leadership positions in our industry.

Floyd Newman
Richmond, Va.

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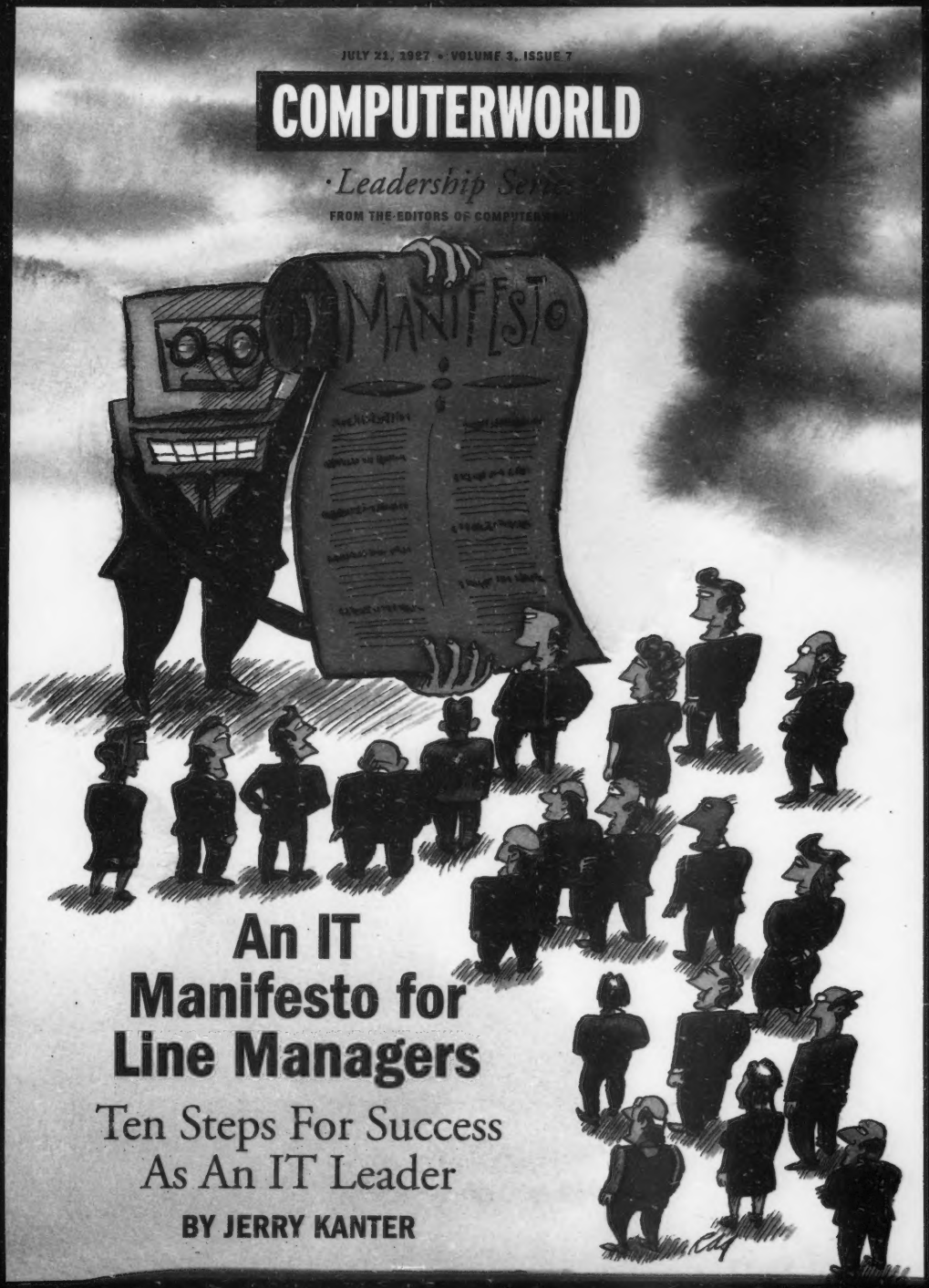
FROM THE EDITORS OF COMPUTER



An IT Manifesto for Line Managers

Ten Steps For Success As An IT Leader

BY JERRY KANTER

Attention, line managers:

It's time you got into the IT act. It's time you got off the sidelines and into the information technology game. It's no longer "those techies" and us "business people," it's "we."

TOO MUCH HAS CHANGED for line managers to just sit back and leave IT to the information systems organization.

IT has grown too important: Business leaders now say that information is the stuff from which they build products, provide services and satisfy customers.

Companies are spending too much on computers to leave technology to the technologists: IT investment accounts for 50% of total capital business investment, according to a Fall 1996 article in the *Sloan Management Review* by Jack Rockart, Michael J. Earl and Jeanne W. Ross.

Technology itself has become democratized. Thanks to powerful processors, graphical user interfaces, the Internet and outsourcing, more people can get into the act and influence the use of IT within an institution. Active participation is a viable, indeed a mandatory, option for anyone who wants to be a business leader.

Already, many of your peers are taking a larger role in the governance of IT within their companies. They've found that companies do better when line managers share responsibility and leadership for major IT initiatives with IS management.

A prime example is GTE Government Systems Division in Needham, Mass. Executives there reorganized its highly centralized IS function, shifting some 50% of the company's IT costs to the control of the business divisions. As a result, division personnel including IS staff designed and implemented new applications while the central IS group re-engineered the companywide IT infrastructure. The remaining central costs were reduced by 27%, which more than offset the cost of the new division applications. GTE management is quite pleased with these outcomes.

The GTE case is no anomaly. I recently participated in a study of 15 IS executives and 30 top line managers. We found that IS organizations are no longer playing the dominant role in most IT decisions.

The IS organization still makes decisions that are mostly technical in nature such as providing an Internet infrastructure to facilitate electronic commerce. But when decisions have a significant impact on a business unit, its products or its customers, functional managers play a strong joint decision-making role with IS.

IT delivery and management is switching from a chauffeur/driver model to an owner/driver model. In IT's early stages, the owner chose the destination but allowed the chauffeur to decide the means and route to get there. IT now allows the owner to do the driving as well.

There are advantages and potential pitfalls to this approach, but developments — the IT equivalent of better cars, roads and maps — have made the owner/driver model the more effective way to operate.

Line managers, your role in the governance of IT within the organization is increasing. Now what? What must you do to be effective in your new role? What do you need to do? What do you need to know?

Here is my 10-point manifesto for you. Consider it a checklist for assessing your awareness and participation in IT. Where do you stand on each point?

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1.

Understand the Level of Information Intensity in Your Business

IN THEIR BOOK, *THE DISCIPLINE OF* *Market Leaders,* Michael Treacy and Fred Wiersema studied 40 companies over a three-year period — all superior, industry-leading performers. The authors found that companies with leadership positions had narrowed their business focus, excelling and concentrating on one of three value disciplines — operational excellence, customer intimacy or product leadership.

Operational excellence means "providing customers with reliable products or services at competitive prices and delivered with minimal difficulty or inconvenience." Federal Express, Wal-Mart Stores, Inc. and American Airlines are examples, according to Treacy and Wiersema. Customer intimacy means "segmenting and targeting markets precisely and then tailoring offerings to match exactly the demand of those niches." Staples, Frito Lay and Home Depot are the authors' exemplars. Companies that pursue the third value discipline, product leadership, strive to produce a continuous stream of state-of-the-art products and services. An example, so state the authors, is Johnson & Johnson.

Information is playing a more significant role in all industries. Still, information plays a different role depending on the industry and on which value discipline is pursued. Some industries are more information-intensive than others. Walter Wriston said when he was chairman of Citicorp that its business was not money, it was the information that tracked and followed the flow of money. A cement manufacturer will not have the information intensity of a bank, insurance company or retailer. This analysis is the starting point for determining the degree and nature of your involvement in IT.

2.

Know Your Department and Your Individual Information Needs

A MANAGER CAN EITHER MANAGE the technology or be managed by it. In order to avoid the latter, you should have a handle on your information needs and those of your department.

A venerable but still relevant management concept, Critical Success Factors (CSF), states that there are only a half dozen or so significant areas that, if properly managed, will ensure success. The key is to identify your CSFs and to dedicate your major energy to them and not to the extraneous interrupts that continually occur. Information systems should help measure, support and shape your CSFs.

CSFs should be used as a benchmark to test suggested changes to existing systems or proposals for new ones. What impact do the proposals have on CSFs? Fail to ask this, and you will be at the mercy of technocrats who are more interested in how information is delivered and the computer server that stores it than on the information required by management and the business (the content). Don't let the media become the message.

One example of putting CSFs to work that I know firsthand involved some real politicians — the Senate of the State of Michigan. That legislative body applied CSFs when it had an information system built for its members. I helped with the initial phase of the effort: an extensive study of the senators' needs. Each of the 38 senators were personally interviewed; they also filled out a questionnaire. We developed a list of goals (achieving a favorable perception by voters and other constituencies, sponsoring and enacting pertinent legislation, etc.) and CSFs which must be met to attain these goals. The CSFs included timely access to relevant information and maintaining positive communications with constituents.

The results of the study were found quite helpful in guiding subsequent systems development. Several years later, Senate offices were equipped with information workstations to help the senators stay in contact with their constituencies. That's not all: Workstations were installed at every member's desk in the Senate chamber. They serve as an advanced decision support system and allow the legislators to do on the floor of the Senate everything they can do at the office. The Michigan Senate is the first legislative body in the

U.S. — and perhaps the world — to have done this.

3. Focus on the Front End of the Process — The "What" and "Why" as opposed to the "How"

I MAY APPEAR TO BE CONTRAdicting my previous recommendation, but for the most part, you should avoid the "how" of information systems and concentrate on the "what" and "why." The pertinent questions are "What do I want done?" (the specification) and "Why do I want it done?" (the benefit or return on investment). As a line manager, you are closer to the "why" issue than the IS staff. When one is deep in an information systems discussion or meeting, ask "Are we working on the what and why questions?" If not, at best you are probably wasting your time by delving into areas where you cannot contribute.

4. Build Your Personal Information Literacy

COMPUTER LITERACY IS A POPUlar but vague term. Most often it refers to a familiarity with the use of PCs and popular software such as word processing, spreadsheets, electronic mail and database applications.

Information literacy is a much broader, more encompassing term, and it's what you need to focus on to learn how to participate in IT. Information literacy implies an understanding of the general concepts of information processing, how information systems shape and support a person's job, a department or operating unit, and links with the company's customers and suppliers. It includes an awareness of the technological enablers that allow a company to re-engineer entire business processes and the need for an overall information architecture or a global network.

Computer literacy's main benefit is to be a stepping stone to the broader, more relevant concept of information literacy.

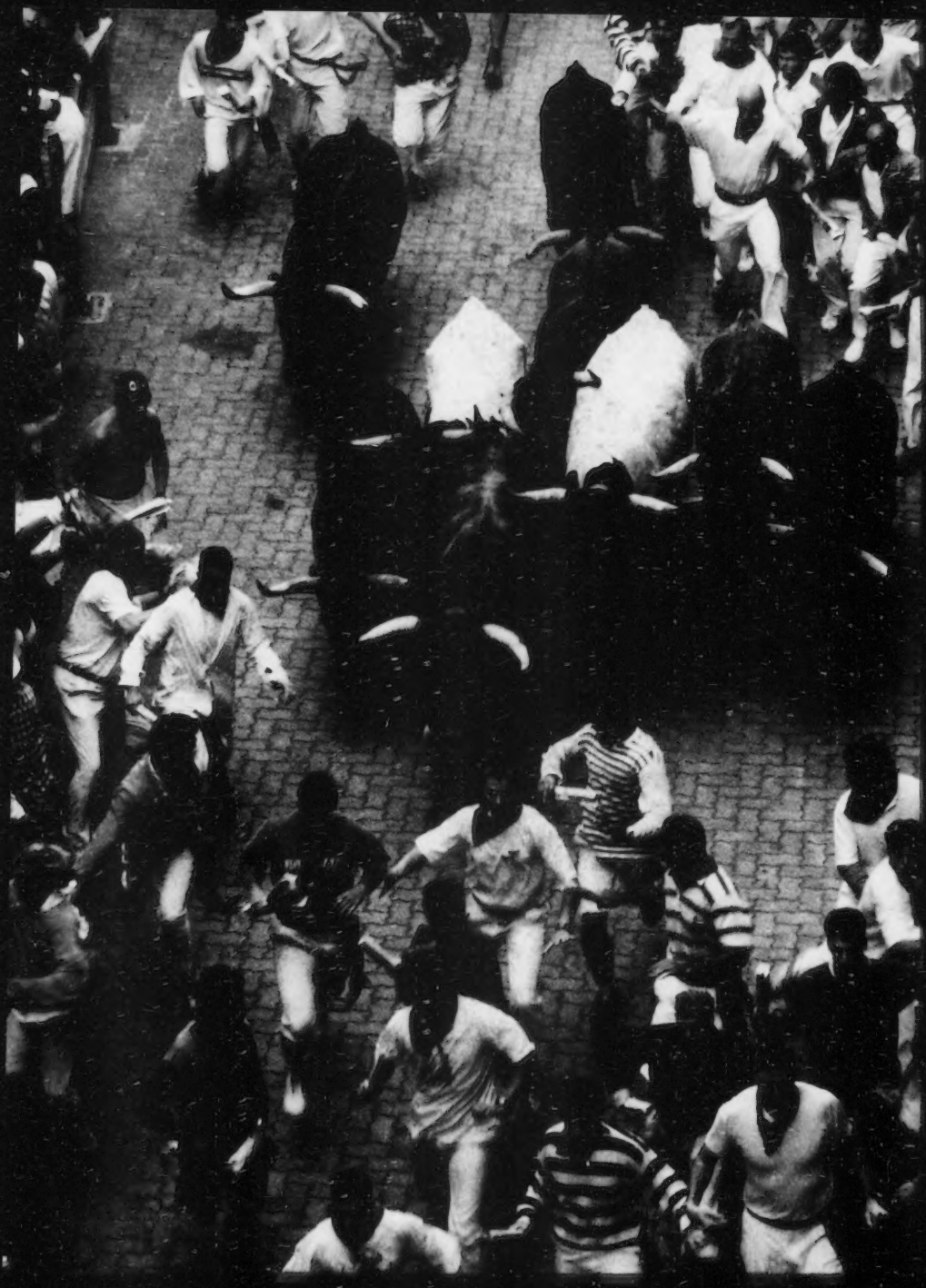
5. Develop a Personal Education Program

BASED ON YOUR ASSESSMENT OF your computer and information literacy, begin developing and executing an education/training program to bring yourself up to speed. Focus your program on knowledge you need to have to help develop a system or application that's under consideration or being implemented. For example, if the focus is on electronic commerce using the Internet, you should obtain a general understanding of the Internet and issues such as security, privacy and backup.

Senior managers need an IT self-education program just as much as junior or middle managers. Don't think your MBA and experience is enough. Many of today's managers graduated from business school before IT was emphasized or even taught. IT in its current form arrived late on the scene. So there is serious catching up to do, and the starting point is understanding your level of information literacy.

Chuck Gibson, a veteran consultant and my colleague at Babson College, is responsible for designing and delivering executive IT learning to many Boston-area companies. He says that just-in-time, needs-based learning is the most effective way of reaching executives. Executives don't have time for the customary two or three day, one-shot, formal classroom seminar. They don't like to be away from the action: Most executives have 12-hour workdays of wall-to-wall meetings, with phone and individual inquiries punctuating the day.

Learning should be tailored to the executive's schedule and mode of operation, says Gibson. Learning should be a process, not an event. One- to two-hour modules every week or so are easier to carve out of an executive's schedule. His advice to harried executives: Schedule these sessions as the first event of the day and hold them away from the office, if possible. Educators should follow the basic rules of executive pedagogy: Provide relevant subject matter. Have clear



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objectives, clearly stated. Use visual aids intelligently. And illustrate lessons with real-life situations with which the executive is familiar.

6. Know Your Cognitive Style and How You Learn

PEOPLE LEARN IN DIFFERENT WAYS, and this important factor should be taken into account in planning how you develop the proper levels of computer and information literacy. One school of thought says that humans have different "intelligences" — logical/mathematical, linguistic, interpersonal, bodily-kinesthetic, etc. — with different parts of the brain controlling different abilities.

The best "learning style" for you depends on the kind of intelligence that's your strong suit. For example, those with high linguistic intelligence do best with written documentation, while those with interpersonal intelligence (common among higher-level managers) react better to individual tutelage. While this is an oversimplification, it's only common sense that you should take your personal strengths and learning style into account when increasing your computer and information literacy.

Timing is another factor in developing an educational program. Frenetic schedules make it difficult to pique the interest of a manager if there is not a pressing reason for the learning. It's important to schedule training when there is motivation for learning.

7. Assume More of a Leadership or Champion Role

IT TAKES MUTUAL UNDERSTANDING to establish a positive relationship between IS and business managers. Part of your job should be to work with the CIO and their staff to bring views into a common perspective.

You can start by taking charge of more IT projects, taking on the role of leader or champion, particularly for major initiatives such as business process re-engineering.

Be aware, though, that the two roles are not identical. A leader has a formal and definite role: heading the steering committee that oversees and leads the project and makes the major decisions on its progress. Champions have informal but powerful roles: They don't participate in committee meetings and the like, but the implementation team knows the champion backs their effort and can be called upon for support when they need it. Champions must be knowledgeable and affected by the system to be effective.

A project can be supported by line managers in both roles. In a major re-engineering effort here at Babson College, which redesigned the entire administrative process, there were several leaders and champions. They included both administrators and faculty, and they were an absolute necessity in a project of this scope.

Leader or champion — by taking on either role, you'll be taking a major step in supporting and working alongside the CIO and the information professionals.

8. Insist on the Application Prototype Concept

IF YOU'VE EVER HAD IS DEVELOP an application for you, you've probably said "Don't give me what I said, give me what I meant." There's a way out of this conundrum: application prototyping. Before the IS staff develops a production version of the

application, have them supply you a simplified prototype version that you can manipulate and use. The beauty of prototyping is that you can try out different options before the significant investment is made in developing the final version. The earlier an error is caught, the less the cost to correct it.

Prototyping also permits experimentation in information systems. Systems that can materially improve the competitive position of a company can be pretested and with manageable risk. Such experimentation proved too much of a financial risk in the past. Today, thanks to the low cost of PCs, an impractical application can be abandoned before the investment makes it impossible or impolitic to do so.

The New England Insurance and Financial Services Co. in Boston is one company where line managers used prototyping. Client teleservicing, providing computer-aided telephone response to customers and would-be customers, is considered a top strategic priority there. Because of its importance, the teleservicing business unit manager made sure that a prototype was set up, supporting five customer service reps on an experimental basis, before the roll out to her entire organization.

9.

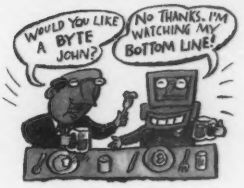
Maintain a High Degree of Patience

MURPHY'S LAW STATES THAT whatever can go wrong will go wrong. In the IT world, the follow-on dictum is "Murphy was an optimist."

I don't want to excuse system failures, network downtime and the like, but we are dealing with complicated hardware and software that all has to play together. A simple application can involve the connection of several dozen pieces of hardware and software, each from a different vendor and most of which are continually updated in new releases.

The mathematics favor breakdowns somewhere along the line. Management must realize that breakdowns are part of the game and they must concentrate more on resolving problems than IS bashing.

It was easy to criticize IT failures in the past, since you may not have felt responsible for major IT projects. Now that you share responsibility, you should show a more patient understanding.



10.

Take an IT Person to Lunch

SUCCESS AND THE PERCEPTION OF success is based on the quality of the relationships between IT and line management. Constant contact and communication is the most common attribute of a good relationship. Only regular informal contact can build up a sense of trust and open the doors to open, honest communication. And once trust is shared, risk can be shared as well.

"Take an IT person to lunch," may be lighthearted advice, but don't underestimate it's importance.

Shared leadership is the key to successful IT enablement of the business. A lunch out might be the first step on the path to IT leadership.

ABOUT THE AUTHOR:

Jerry Kanter is the founder and director of the Center for Information Management Studies (CIMS) at Babson College in Wellesley, Mass., and a former IS executive at Honeywell Co. in Boston and Kroger Co. in Cincinnati. His most recent book, *Information Literacy: The Business Manager's Guide*, was published in 1996 by Babson Press and McGraw Hill. His E-mail address is kanter@babson.edu.

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COMMENTARY

Light summer reading. (Not)

DAVID MOSCHELLA

WHILE OUR government's hands are still officially "off the Internet," some of its best minds are now fully engaged.

The Supreme Court recently issued its Exon-Coats Communications Decency Act (CDA) decision, the White House unveiled its electronic commerce report and the quasi-governmental Internet International Ad Hoc Committee (IAHC) released its plan to resolve international Internet domain name disputes.

One of the blessings (curses?) of the punditry business is you get to (have to?) read these policy tomes. Accordingly, I decided to see for myself what each of these three 15- to 30-page tracts had to say. Below is my quick analysis, provided in order of quality and relevancy.

Personally, I learned more reading the Supreme Court's unanimous rejection of the CDA (*www.aclu.org*) than from all the countless Internet free-speech articles, speeches and forums I have absorbed over the years. Not surprisingly, although 'netizens have been gushing about how the Court has extended First Amendment protection to the 'net, the actual decision is more balanced.

The CDA was declared unconstitutional because it was too vague, particularly in the use of the word "indecent." The Court also reaffirmed the state's interest in protecting minors but recognized that, with the Internet today, this can't be done without adversely affecting the rights of adults. The clear underlying message is that if technology could effectively enable adult-only cyberzones, well-crafted legislation may be permitted.

Whereas the CDA is mostly about citizens' rights, the IAHC recommendations (*www.iahc.org*) are primarily concerned with protecting the rights of corporations to use their brand names as Internet second-level domains, for example, computerworld.com. This extension of intellectual property and trademark law into Internet naming is probably inevitable, but am I the only one who finds this whole issue a bit unseemly?

Consider that, unlike the Web, neither postal addresses nor telephone numbers serve as global brand amplifiers. Using brand names as global domains bestows a competitive advantage upon existing multinational firms.

The simple, but highly unlikely, alternative would be to revert to purely numerical addresses, which treat all groups, individuals and countries equally. With those addresses, no one would demand ransom for domain names or argue about how they are assigned. Any resulting user inconvenience would quickly be alleviated through revitalized directory services, search engines, bookmarks and embedded Web links.

Unlike the CDA and IAHC writings, you can skip the White House's Framework For Global Electronic Commerce (*www.iitf.nist.gov*). It consists mostly of Internet motherhood — the huge potential for electronic business, the need for security and simplicity and the dangers of additional Internet taxes. Its main purpose seems to have been to give Ira Magaziner something interesting to do.

In sum, although all three efforts appear harmless, beware. When so many politicians are saying that the Internet must be left alone, you can be sure it won't be. Each tract is actually paving the way for unavoidable increases in government involvement. □

Moschella is senior vice president of research at Computerworld, Inc. His Internet address is david_moschella@cw.com.

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Corporate Strategies

Case Studies • Trends • Outsourcing

Briefs

IT execs swamped

Senior IT executives are so swamped with administrative duties, they don't have enough time for strategic planning, according to a new study. The poll of more than 100 executives was conducted by the Cambridge Information Network, an organization of senior information technology executives worldwide. IT managers said they had to delay strategic development activities to address immediate concerns such as user support problems and personnel matters. The executives said their No. 1 wish was to devote more time to business innovation.

Reuters installs Oracle

Reuters Holding PLC, the British parent company of the Reuters news service, is installing Oracle Corp. applications to run its operations. Reuters is installing Oracle financials, manufacturing and human resources modules around the world as its standard software system.

Surf's up ... at work

People are more likely to browse the World Wide Web at work than at home, according to a survey released by PC Meter LP. But neither group spends a lot of time browsing. A study of approximately 600 business users and 10,000 home users connected to PC Meter's software found that business users spent 5.75 hours per month on the Web, and home users spend only 3.5 hours per month.

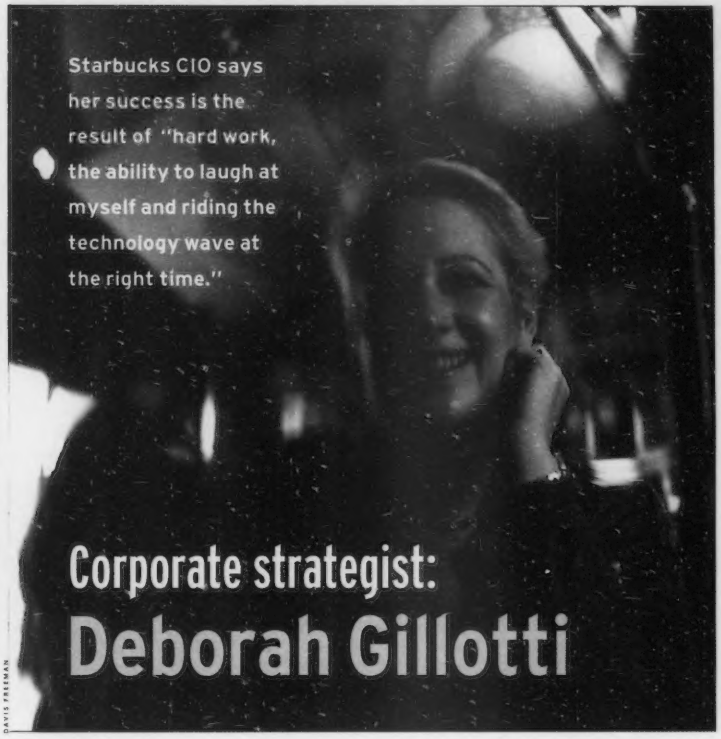
HOW MUCH AND WHEN CAN WE HAVE IT?

IS project shortcomings

Over budget (Cost overruns greater than 50%)	**55%**
Late (Required at least twice the estimated time)	**50%**
Incomplete (Delivered with 50% or less of planned functionality)	**30%**

Base: 7,000 systems and application development projects started since 1990

Source: IT Cost Management Strategies, Carlsbad, Calif.



DAVIS FREEMAN

Corporate strategist: Deborah Gillotti

By Laura DiDio

DEBORAH GILLOTTI, the new CIO at Starbucks Coffee Co., is the ultimate egalitarian.

"She's an incredibly down-to-earth person. Her door was always open to everyone from clerks to the CEO," recalled Jamie Miller, her former administrative assistant at Duracell International, Inc. in Danbury, Conn. "Because of that, Debbie inspires a lot of loyalty. People are willing to go the extra mile for her."

The loyalty also comes from Gillotti's team-building, nonconfrontational management style, said colleagues from her current and past workplaces. Armed with a sense of humor and an ability to disengage potential conflicts, Gillotti asks questions that prod people to reexamine their thinking and to reach constructive conclusions.

The combination of Gillotti's personality and style has worked to create an open, interactive atmosphere at Starbucks, where employee participation is para-

Starbucks, page 46

CNEs are engineers in Illinois

▸ *Novell wins court battle to use title*

By Julia King

IF YOU ARE ONE of a legion of technology professionals who has invested months of training time and thousands of dollars in a Novell, Inc. certification program, it's now safe to call yourself a Certified Novell, or NetWare, Engineer (CNE).

In Illinois, anyway.

Elsewhere, state laws that prohibit computer professionals from using the engineer title remain on the books.

NO CONFUSION

Acting on behalf of more than 120,000 CNEs worldwide, Novell took its case to court after the Illinois Department of Professional Regulation ordered the Provo, Utah-based networking company to cease and desist using the word "engineer."

But last week, the Circuit Court of Cook County in Chicago reversed the order. It said Novell's use of the word engineer didn't create confusion or harm the public.

The court also concluded that the words "certified NetWare or

CNEs, page 46

• Focus on business competencies

Study points to IT outsourcing

By Marc Ferranti

A SHORTAGE of skilled technicians and a corporate focus on core business competencies will accelerate IT outsourcing worldwide over the next few years, according to analysts at Gartner Group, Inc. in Stamford, Conn.

But all too often, relationships between companies and external information technology service providers sour because of poorly defined goals, Gartner analysts said.

The analysts, who were preparing for an IT services conference last week in New York, said the shortage of skilled computer engineers is greatest in the U.S., where the economy is booming and the transition to new information technology is in full swing.

The types of skills needed vary around the world. In the U.S., economic vigor and the conversion to network-based computing — including the In-

IT outsourcing, page 46

Snapshot

SPENDING FOR THE NEXT FISCAL YEAR

IS managers who will increase spending	41.6%
Of those managers, their average spending increase	10%
IS managers who will reduce spending	10.7%
Of those managers, their average spending reduction	10%
IS managers who will maintain current spending levels	47%

Base: 1,437 IS buyers surveyed in February, March and April 1997

Source: Computerworld Research Group, Framingham, Mass.

Starbucks CIO Deborah Gillotti

CONTINUED FROM PAGE 45

mount, observers said.

Gillotti, 41, is among approximately 60 women who serve as CEOs and chief information officers at Fortune 1,000 firms.

One of her primary missions is to upgrade the company's rapidly expanding infrastructure. That includes first-time Internet links for 1,000 users at Seattle headquarters and remote dial-up electronic-mail access for the company's 1,200 restaurants in the U.S., Canada, Japan and Singapore. Starbucks earned $42 million in profits last year and about $700 million in revenue.

Gillotti has paid her dues.

Nineteen years ago when she began her information systems career at the International Monetary Fund (IMF) in Washington, Gillotti said she "didn't have a clue" that it would be possible to rise to CIO.

"In the late 1970s, there were very few women role models. I figured I'd be a midlevel manager," she said.

In 1982, she left the IMF to work at GTE Corp. in Stamford, Conn. Jobs at KPMG Peat Marwick, also in Stamford, and Duracell followed.

She honed her IS skills working in positions ranging from end-user support specialist to MIS manager and finally CIO for Duracell's North American operations.

Gillotti said her corporate climb was a natural progression whose main ingredients were "hard work, the ability to laugh at myself and riding the technology wave at the right time."

Her stint at GTE in the mid-1980s coincided with the advent of PCs and networks.

To advance her career by learning business practices, Gillotti accepted a consulting position at KPMG Peat Marwick in 1989.

Along the way, Gillotti has learned how to navigate gender issues. At Duracell, she worked to foster a spirit of teamwork and actively solicited the input of 55 male subordinates.

NEW APPROACH

That approach was the antithesis of her precedessor's management style. He was someone who didn't focus much on team-building, Gillotti said. Her simply asking for mens' opinions earned her some instant goodwill that paid off, for example, when the company tackled networking its legacy IBM systems.

When it came to dealing with the rare female managers, she went out of her way to treat the women fairly but showed no favoritism. "I knew it would be viewed unfavorably," Gillotti said.

On a personal note, Gillotti said she and her husband made the decision to concentrate on their careers.

"We don't have children. After lots of discussion, we realized neither of us could have the same level of achievements if I had chosen the mommy track," Gillotti said. "I admire women who are able to juggle the dual challenges of career and motherhood, but I'm not one of them."

Gillotti's focused energies are appreciated at Starbucks.

"Her energy is infectious; she's inspired and empowered those of us who own the technology by giving us the resources and the authority to go ahead with upgrade plans and purchasing decisions," said John Williams, director of brand development at Starbucks.

Her only apparent fault, Williams said, is that "Debbie has yet to develop her coffee palate."

"Not so," Gillotti retorted. "I'm aggressively sampling all the Frappaccino flavors." □

IT outsourcing to grow

CONTINUED FROM PAGE 45

ternet and intranets — has touched virtually the entire IT workforce, according to Mike Vargo, a Gartner vice president.

Gartner also predicted that increasing globalization of large companies' businesses will tend to consolidate the market strength of traditional service providers that have international presences, such as Andersen Consulting and IBM.

But there will be room for niche players. For example, one result of stronger telecommunications links between emerging and developed countries will be the further use of offshore external service providers, Vargo said.

"Too many users are under the impression that they can turn everything over, and everything will be great."
– Mike Vargo, Gartner Group

Large Western companies more and more will use external service providers based in countries such as India, South Africa, the Philippines, Ireland and Singapore.

"U.S. companies will use skilled workers in these markets to get cost benefits the same way automakers did by using offshore manufacturing," Vargo said.

Some corporations have entered into complex alliances or even joint ventures with service providers, Vargo said. For example, Du Pont Co. is creating a global information systems group by combining its in-house expertise with a variety of partners, spending $4 billion in contracts in the process.

But rather than hand control of systems to others, Du Pont is retaining the lead role as manager and integrator of a variety of internally and externally supplied technologies and services, company officials said.

The creation of joint ventures is particularly common in Europe, where labor laws make it costly to simply lay off information systems personnel and instead use third-party providers.

For example, Perot Systems Corp., a service provider looking to gain a stronger foothold in Europe, has formed a banking technology services company with one customer, Vargo said.

In cases such as this, a user company can spin off home-grown expertise into a joint venture that will focus on managing that know-how, and potentially turn it into a profit center. Besides serving the user company, the venture can serve other companies in the same field.

Another general trend in the service-provider business will be a focus on managing desktop-computer rather than data-center technology, according to Gartner research.

After decades of practice, corporate data centers have gotten good at their jobs and know their technology at least as well as their service providers do, Vargo said. But the haphazard growth of technology at the desktop has left many companies with a crazy quilt of computer software and hardware that's tough to control. □

Ferranti writes for the IDG News Service, New York bureau.

CNEs now are engineers in Illinois

CONTINUED FROM PAGE 45

Novell" modify the term "engineer" in such a way to clearly distinguish Novell technology experts from professional engineers who want to reserve the title engineer exclusively for themselves.

"There is no evidence of public confusion," said Craig Christensen, senior corporate counsel for Novell. "Individuals use the CNE credential to show they're qualified to support Novell computer networks, not to build bridges or roads."

The Illinois law that Novell challenged — like all state title laws — prevents anyone other than people educated and licensed in one of 36 recognized engineering disciplines from using the words "engineer" or "engineering" to describe their occupation or the services they offer.

FRAUD CONTROL

Proponents of state title laws, notably the National Society of Professional Engineers, argue that such laws are necessary to safeguard the public from fraud and substandard work on public projects, such as bridges.

But the catch-22 is that hardware, software and networking aren't among the disciplines recognized by the states or National Society of Professional Engineers [CW, May 30, 1994].

A spokesperson for the Illinois Department of Professional Regulation last week said the agency is considering whether to appeal the court's ruling. She also said the ruling applies solely to Novell professionals and doesn't automatically allow other computer professionals to legally use the title of engineer. Microsoft Corp., for example, certifies professionals as Microsoft Systems Engineers.

Christensen said Novell also has filed a suit in federal court in Nevada, demanding that regulators in that state grant Novell professionals the right to use the engineer title.

Over the past two years, regulators in two other states — Texas and Tennessee — have pressured hardware and software engineers to drop the engineer title. But Novell hasn't taken legal action in either state, Christensen said.

Instead, the networking vendor has responded to the pressure by sending letters to both states' regulatory boards "affirming our position that the public can clearly distinguish between an electrical engineer or civil engineer, who builds bridges" and a computer professional, Christensen said.

Following the Illinois ruling, Novell will reinstate the full title Certified Novell or NetWare Engineer on certificates awarded to those who take the training, said Craig Tupper, contracts manager for Novell's education arm.

"Our certificate said 'CNE' for a time. Now, we're going back to Certified Novell Engineer. That will satisfy those individuals who spent time and money to earn certification," Tupper said.

The only exceptions are Novell engineers in Canada, where professional engineers have actually trademarked the word engineer, thus barring its use by any other professional.

"CNEs in Canada are called CNEs," Tupper said. □

WHAT'S IN A TITLE?

In most states, to legally call yourself an engineer you must:

- Hold an engineering degree from an accredited engineering school
- Have four years of experience acceptable to your state's licensing board
- Complete two eight-hour examinations

IT'S NOT NEWS.

(It's a network.)

Looks like Copernicus was wrong—the world actually revolves around the Internet.
At least it seems that way in the news.
But, the Internet is just a way of connecting people to other people and to the resources and information they need. It's a network of networks.
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The Internet

Electronic Commerce ♦ The World Wide Web ♦ Intranets

Briefs

Access to mainframe

Unikix Technologies in Phoenix is letting users download free versions of its Web Client software on its World Wide Web site at *www.unikix.com*. The software lets users access mainframe CICS transactions from a Java-based Internet client. Web Client includes a TN3270 terminal emulator to get at mainframe data. But if users want to get full enterprise support for the software, maintenance deals start at $10,000.

Site sighting

Microsoft Corp. is shipping Site Server 2.0 and Site Server Enterprise 2.0 software. The packages will let users enhance, deploy and manage their Internet/intranet sites. Both packages work with Active Server pages to dynamically generate Web pages based on stored user preferences. Site Server 2.0 for small and midsize businesses costs $1,499. Site Server Enterprise 2.0 costs $4,999.

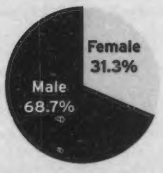
Internet fax

Internet service provider UUnet Technologies, Inc. has teamed with Open Port Technology to let its subscribers send faxes through its points of presence over its network backbone. The UUFax service will be available late in the year and will let users save as much as 50% on their international faxes, company officials said.

WEB SURFER DEMOGRAPHICS

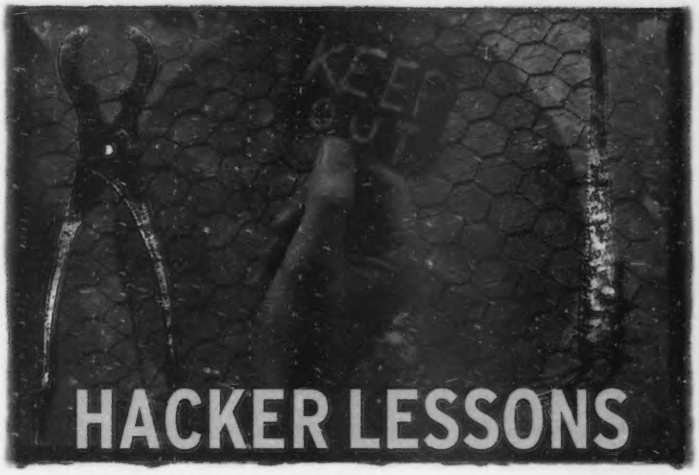
Average age: 35.2 years

Sex:



Base: 19,970 Web users

Source: Graphic, Visualization & Usability Center at the Georgia Institute of Technology, Atlanta



DIANE FENSTER

▸ *Former hackers offer some security advice*

By Sharon Machlis

AT 15, computer hacker Matt Willis had a run-in with the FBI, which gave him an ultimatum: Stop what you're doing or we'll seize every last piece of your computer and communications equipment.

It was more effective than prison.

"That's death," Willis, now 23, said seriously. "Then I started on the 'light side.'"

Willis' business card reads "information security professional," and he puts his skills to use at companies that pay him to test their network vulnerabilities. "I'm traveling around breaking in to places. I couldn't be happier," he said at the annual DEF CON hackers' convention earlier this month. "What I am employed to do is walk in and scare the hell out of people."

What he often finds is that companies spend so much time worrying about "perimeter security" that they don't pay enough attention to what he calls the "soft chewy center ... all the systems you never

Former hackers, page 50

Hackers warn: Beware of NT security holes

By Sharon Machlis

WINDOWS NT administrators should brace for a wave of new security holes to be uncovered in the operating system during the next year, according to hackers and consultants who attended a Las Vegas conference this month.

That isn't because NT is fundamentally less secure than other commercial operating systems, they said. Unix went through similar difficulties in its early years. However, because NT is relatively new and receiving lots of attention in the hacking community, administrators need to be vigilant about keeping up with the latest bugs and fixes.

"It's going to take more attention than Unix," said Matt Willis, an information security expert at Secure Computing Corp. in Roseville, Minn.

To harden a system against outside attacks, administrators

NT security holes, page 50

Travel service providers broaden online offerings

By Mitch Wagner

THREE TRAVEL-INDUSTRY powerhouses are aggressively moving to expand their online booking services, targeting the consumer and business-travel markets.

The Sabre Group Holdings, Inc. and American Express Co. last week announced new versions of their online business travel services, and United Airlines discussed plans for its consumer-directed online travel offering.

Internet travel service providers said their services can save companies money by keeping road warriors from making travel and hotel arrangements that violate rules on cost or that don't take advantage of negotiated corporate rates.

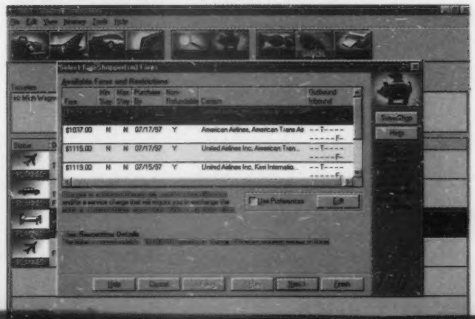
Bob Grant, director of corporate travel services at Charles Schwab & Co. in San Francisco, gave the Sabre software rave reviews. By deploying the Sabre system in the corporate travel department at Schwab, the company has improved productivity of its internal travel agents by 61%. Booking travel by hand costs Schwab $55 to $60 per trip; with Sabre, the cost of booking a trip is reduced to $18, Grant said.

GOOD IN THEORY ONLY?

But Sherri Hayworth, travel administrator at the $3.6 billion Harris Corp. in Melbourne, Fla., cautioned that many of the

Travel service, page 50

United Airlines plans to start moving its United Connection consumer travel service onto the Web next month



WEB REVIEW▸

Travel sites

Travel takes off online

By Gary H. Anthes

I MAY HAVE made my last telephone call to a travel agent.

Even though it's always been possible to book your own flight, car rental and hotel when planning a trip, it usually made more sense to have a travel agent do it for you. That saved you from making multiple calls to find the best deals. And without access to the online databases of rates, schedules, features and restrictions, it was difficult to comparison-shop in this incredibly complex arena.

But I recently tried three Internet travel services — the top three, according to *Travel Weekly* — and it's clear that two of them can equal or beat my favorite

Travel sites, page 52

Travel providers broaden offerings

CONTINUED FROM PAGE 49

benefits of online travel are still theoretical. Employees need to be sold on using the travel service, which often isn't easy.

"They say, 'I looked at the service once, but I haven't got time. I can't be bothered,'" Hayworth said.

New features in the latest version of the Sabre Business Travel Solution (BTS) include the Sabre Negotiated Airline Policy, which gives corporate travelers a unified view of all the prices available for airfare, hotels and car rentals as well as special rates that a corporation negotiates with travel providers, said Peter Stevens, director of marketing at The Sabre Group. Sabre BTS also automatically searches for the lowest rates.

Sabre plans in the fourth quarter to add a feature that automatically sends essential last-minute travel information to customers' pagers, including the arrival gates of flights, flight reschedulings and cancellations, Stevens said.

COMING THIS FALL

Meanwhile, Amex, in New York, and Microsoft Corp. in Redmond, Wash., announced plans to make the corporate travel service formerly known as Project Rome available in the autumn. The American Express Interactive (AXI) service is a competitor to Sabre BTS and lets companies book business travel over the Internet or intranets.

Like Sabre BTS, AXI will allow companies to impose their travel policies on users, display negotiated rates along with universally available fares, and integrate travel expense information with expense-accounting and expense-tracking software, said Mike Mulligan, senior vice president and general manager of interactive travel at Amex.

UNITED'S PLANS

And United Airlines officials said the airline plans to start moving its United Connection consumer travel service onto the World Wide Web next month. United Connection currently runs on proprietary Windows-based client software.

The service lets a consumer book air travel on any carrier — not just United — shop for the cheapest fares, look at a diagram to determine where on a plane their seat is and check on their United frequent-flyer mileage.

United plans to start offering ticket sales for some discount flights on the Web next month and hopes to have a Web-based version of United Connect on the Web next year.

The Sabre offering and the beta offering from Amex are available primarily in extranet versions. Most of the intelligence of the applications is stored in mainframe data centers that have access to customer business rules, special contracts that customer companies have with travel providers and travel preferences for individual employees.

Sabre and Amex distribute intranet servers to customer companies that are connected via leased lines, rather than the Internet, for security. The Amex offering will also be available in an Internet version, in which the Web servers are hosted by Amex and the customer company needs only to provide its employees with Internet access and a desktop browser. □

High-flying sales

Recent announcements and upgrades by travel industry giants for their online services have added momentum to an industry that is already growing fast online.

Online travel ticketing is expected to total $396 million this year and will increase nearly threefold to $1.05 billion next year and to $8.01 billion by 2000, according to May estimates by Forrester Research, Inc. in Cambridge, Mass. But online sales still represent only a tiny amount of the overall travel booked in the U.S. Only 0.5% of travel tickets were sold online this year; that number is expected to increase to 8% by 2001.

Players in the online travel business include Preview Travel, Inc., Internet Travel Network, Inc. and Microsoft, which offers travel bookings on its Expedia Internet site. Also, American Express offers a consumer-based travel site, Travelocity.

In addition to letting customers take over the bookings themselves, electronic commerce may also cut expenses for airlines, said David Kolner, a marketing manager for electronic distribution at United Airlines, whose parent company is UAL Corp. in Elk Grove Township, Ill. The cost of distributing tickets — sending out paper tickets and having telephone operators available to take calls and answer questions — is United's third-highest cost. It comes in just behind fuel and personnel and ahead of the costs of acquiring and maintaining airplanes, Kolner said. — Mitch Wagner

Former hackers offer security advice

CONTINUED FROM PAGE 49

thought would be touchable." For example, although encryption has helped secure transactions moving across the Internet, "the endpoints (desktop systems that are connected to the network) are attackable."

Willis saw himself as a role model at DEF CON, where an estimated 1,000 hackers — many sporting rainbow-colored hair, multiple pierced body parts and in one case even a three-dimensional tattoo (a metal shape is implanted under the tattooed skin) — converged to hear the latest in computer security.

"Everyone was [once] a stupid teen-ager," Willis said. "It's nice for them to see [a hacker] who turned out OK."

For information systems professionals who try to secure their systems, "stupid teenagers" trying to prove their skills by cracking are becoming a bigger problem.

Graphical user interfaces have come to hackerdom, opening up the field to kids who simply download tools and launch attacks on systems worldwide.

But system administrators can do a great deal to thwart cybermischief by taking care of basics and keeping up with new bug reports and vendor fixes, according to the skilled hackers who attended the convention.

"Everyone was [once] a stupid teen-ager. It's nice for them to see [a hacker] who turned out OK."
– Matt Willis, former hacker

"Pay attention and get the latest patches," advised one, a heavyset, tattooed "computer enthusiast" who goes by the name Biffsocko.

Biffsocko said he finds that system administrators often make basic errors such as not trying to hide password files or leaving crucial data easily accessible via anonymous file transfer protocols, which doesn't even require a password. His hacker friend Imaginos said he often finds backups of key files that aren't given the stringent access permission requirements of originals.

Regardless of technical advances in the hacker community, Willis said, the easiest way to break in to a system is through human lapses such as easy-to-guess passwords. "Social engineering," he said, "is still the strongest attack."

He often finds that companies don't even try to harden their networks against attack, with administrators claiming they don't have enough time and resources to cope. "They hide behind it. It makes a good excuse," Willis said. "A lot of people just give up on security because they feel hackers are everywhere. You have to at least put a speed bump in there." □

Beware of NT security holes

CONTINUED FROM PAGE 49

should turn off all operating system functions they don't need, advised Dominique Brezinski, a consultant at CyberSafe Corp. in Issaquah, Wash.

It may take some experimenting to discover what can be shut down and what is necessary to run your system, Brezinski said, but closing all potential entries is crucial to fend off attacks from outside. For example, administrators might want to shut down Simple TCP/IP Services, which includes features such as echo and quote of the day; those are sometimes used by hackers in denial-of-service attacks.

JOHN STALEY

CyberSafe's Dominique Brezinski considers himself a "classic" hacker

SIDE EFFECTS

If it is at all affordable, put different services such as World Wide Web servers, file sharing and domain name servers on separate machines, Brezinski said. Software functions, much like medications, can have unintended and dangerous side effects when combined. "Pay a lot of attention to file permissions," he said.

For example, a user with read/execute privileges in one directory can copy a file out, modify it once that file is in his personal directory and copy the changed file back to the original directory — even though in theory, the user doesn't have write permission for that file.

Despite its graphical interface, NT is as complex as Unix and needs just as much technical skill and attention, several NT experts said.

Brezinski, who considers himself a "classic" hacker — seeking knowledge but avoiding criminal trespass — criticized Microsoft Corp. for being slow to respond to some bug reports and for not adequately documenting all technical aspects of NT for administrators to study.

"They just don't know what they can and can't do — what services they can turn off," he said.

Brezinski said he would feel comfortable using NT for a single-use server but is less confident about multiuser setups, partly because software compatibility issues with Windows 95 prevent some strict multiuser security issues from being implemented.

Willis said it is possible to run a fairly safe NT-based system. "If you have some savvy NT guys and keep up with the latest patches, it's an acceptable thing," he said. □

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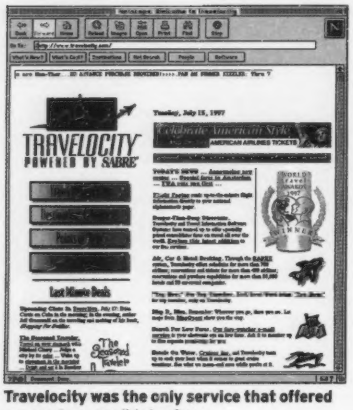
WEB REVIEW▶

Travel sites take off online

CONTINUED FROM PAGE 49

travel agent, at least for some kinds of trips. All are free.

Bells and whistles such as travel news, chat rooms, maps and travel-topic search engines abound at these sites. Most of these features are fun, and many are useful. I particularly liked the free subscription services — all three sites offered them — that notify you via electronic mail of air fare changes and special deals on routes of interest to you.



Travelocity was the only service that offered access to consolidator fares

But the criterion that overshadows all others, in my view, is the ability to find the lowest air fares. Suboptimum performance here can cost a user hundreds of dollars.

The qualified winner in the low-fare sweepstakes was Expedia from Microsoft Corp. Its search engine was the only one to find a round-trip flight between New York and Paris on Tower Air for $734. The other services — including my travel agent by telephone — all quoted $785 flights as the best available for my trip to France.

However, Travelocity was the only service that offered access to "consolidator" fares — steeply discounted tickets offered by bulk resellers. A consolidator fare on my New York-to-Paris round trip came in at $658, or 10% less than the best regular fare. But Travelocity's low-fare search engine didn't look at consolidator fares; you have to do that as a separate step.

TRAVELOCITY

Travelocity is powered by the venerable Sabre travel information and reservation systems. Its home page has a clean, attractive layout, and it is easy to find the important areas, such as reservation services.

In addition to airlines, hotels and car rental firms, Travelocity offers information on the major cruise ship lines and 20,000 bed and breakfast establishments.

It is one of the few World Wide Web sites I've ever visited that appeared bug-free. It never crashed, led me into blind alleys or did other stupid things. Just one gripe: References to previously visited links don't change from blue to red to remind you of paths already taken.

I registered for the "fare watcher" service, asking it to monitor air fares between certain cities I plan to visit in the next few months. The next day, via E-mail, I was notified that a very low fare between Phoenix and Washington had just gone up $100.

Another gee-whiz feature displays maps that show a route between any two addresses. The maps are annotated with written driving instructions. The feature works only for points less than 300 miles apart, however, so it is best used for jobs such as getting you from airport to hotel in a strange city.

And Travelocity had a useful search engine. I entered "Grand Canyon" and got back links to more than 100 related Web sites.

In sum, Travelocity provides a model for how to build an excellent Web site: Make it effective and easy to use, eliminate annoying glitches and throw in a few neat features to make it memorable.

INTERNET TRAVEL NETWORK (ITN)

ITN had the cleanest, least cluttered site. Unfortunately, it was the most difficult to use.

It was the only site that required use of a log-on name and password to access any services or databases. And it *requires* users to book a flight before accessing car or hotel rentals. I tried for a long time to find hotel information before stumbling across a message that advised me to book my air reservation first. What if I'm driving to my destination?

ITN's low-fare search engine was cumbersome and unreliable. For my New York-to-Paris request, it gave me five choices going and five returning — 25 possible itineraries — and asked me to choose a flight each way. It then priced those flights and told me if there were cheaper alternatives.

But depending on which flights I selected for pricing, it didn't always find the lowest-cost alternative. In one trial, it listed a round trip costing $1,003 as the low-cost choice, and another time it gave me a $784 alternative. Only after extensive trial and error did I feel confident I'd seen the best choices.

Expedia's home page is slick and colorful but cluttered

ITN is a frustrating Web site. Clearly a lot of effort has gone into some pretty complex and sophisticated functions, and it promises much. But one is left with the impression that it wasn't thoroughly tested on real-world users with a wide variety of travel needs.

MICROSOFT EXPEDIA

Expedia's home page was slick and colorful but cluttered. And the bottom quarter of the screen was given over to a big, horizontal advertising bar, which gave the rest of the screen a cramped feel.

The basics — searching schedules and rates and making reservations — all worked well.

I tried the "maps" feature but was told my browser didn't support the required functions. "Check back this summer when an HTML-only version of the site will be available," it advised.

Expedia had other annoying quirks. For example, clicking on may browser's "Back" button didn't always send me back to the previous page. It just endlessly repeated the page I was on.

Expedia also gives an option to print your travel itinerary, in various levels of detail, so your spouse has something to stick on the refrigerator while you're away.

Expedia is a good, solid site that offers a very effective service, and it earned a permanent bookmark in my browser. Still, a little more testing and a little less focus on advertising could have boosted its overall grade to A.□

TRAVEL SERVICE WEB SITES – HOW THEY STACK UP

	Travelocity	Microsoft Expedia	Internet Travel Network
	www.travelocity.com	www.expedia.msn.com	www.itn.com
GRAPHICS	Good	Fair	Good
EASE OF USE	Good	Fair	Poor
PERFORMANCE	Fair	Good	Good
LOW-COST AIR FARE SEARCH	Fair	Good	Poor
OVERALL GRADE	A-	B	D

NEW PRODUCTS

TELEMATE SOFTWARE has announced Telemate.Net, a program for translating large amounts of Internet data into business reports.

According to the Atlanta company, the program was designed to help network managers and others decide what costs are associated with Internet use and how to allocate the costs.

Pricing starts at $5,995.

Telemate Software
(770) 936-3700
www.telemate.com

RAPID LOGIC, INC. has announced WebControl, a software development kit that allows rapid deployment of World Wide Web-based management into network devices.

According to the Oakland, Calif., company, WebControl was designed to be platform-independent. With MagicMarkup technology, developers of embedded systems can separate the development of a product's graphical user interface (GUI) from the development of its underlying C source code. That separation lets engineers focus on the functions of products while marketing and sales support personnel work on customizing a GUI.

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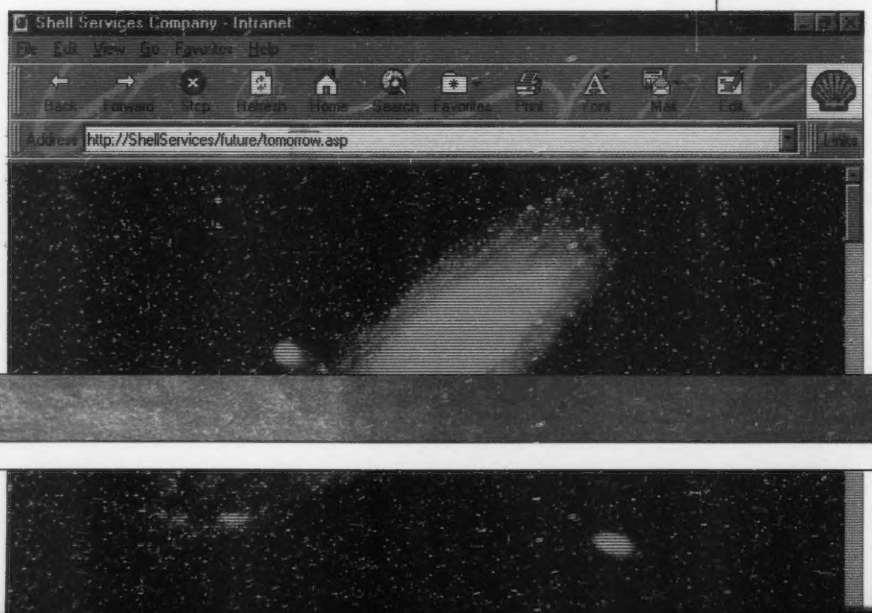

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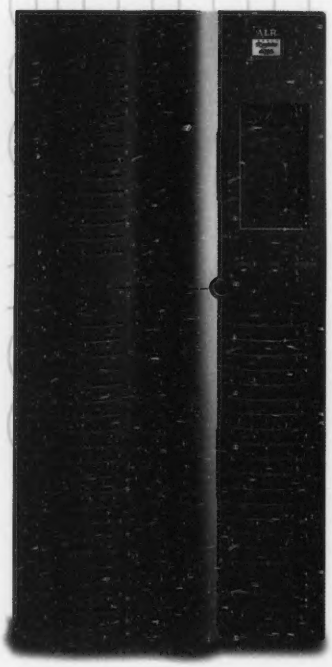

TOP (tpmC) Intel-Architecture Systems*

Rank	Manuf.	System	Throughput (tpmC)	Price/Performance ($per tpmC)	Qty/Processors/MHz
1	**ALR®**	**Revolution™ 6x6 c/s**	**10,665.53**	**$48**	**6/Pentium Pro/200MHz**
1	**Unisys®**	**Aquanta™ HS/6 c/s**	**10,665.53**	**$55**	**6/Pentium Pro/200MHz**
2	HP®	NetServer™ LX Pro c/s	9,126.00	$50	4/Pentium Pro/200MHz
3	NCR®	WorldMark™ 4300S c/s.	9,116.00	$86	4/Pentium Pro/200MHz
4	Compaq®	ProLiant™ 6000 6/200 Model 1X c/s	8,928.67	$79	4/Pentium Pro/200MHz
5	Compaq®	ProLiant™ 5000 6/200 Model 2 c/s	8,311.43	$79	4/Pentium Pro/200MHz
6	Digital®	PAlpha™ ZX 6200MP	8,145.80	$49	4/Pentium Pro/200MHz
7	Compaq®	ProLiant™ 5000 6/200 Model 1X c/s	8,070.00	$58	4/Pentium Pro/200MHz
8	HP®	NetServer™ LX Pro c/s	8,028.00	$73	4/Pentium Pro/200MHz

Product comparison chart below is not representative of the machines used in these benchmarks. * Data current on 7/9/97.
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	ALR Revolution 2X™	ALR Revolution 6X6™	Compaq Proliant™ 6000
CPU	(1) Pentium® II 266/512	(1) Pentium® Pro 200/512	(1) Pentium® Pro 200/512
Maximum No. of Processors	**2** (Pentium Pro or Pentium II)	**6**	4
Memory	32-MB	128-MB	128-MB
Hard Disk Drive Storage	5-Gigabyte (IDE)	9-Gigabyte (FWSCSI)	9-Gigabyte (FWSCSI)
LCD Touchscreen Diagnostics	Not Available	Standard	Not Available
CD-ROM	**16X** (IDE)	**16X** (SCSI)	8X (SCSI)
RAID Ready	Optional	6 Bays	6 Bays
Hot Swappable Expansion	Optional	6 Bays (1.6)	6 Bays (1.6)
Network Interface	10/100 Ethernet	10/100 Ethernet	10/100 Ethernet
On-board Disk Controller	Dual IDE & Ultra Wide SCSI	Fast/Wide Ultra SCSI	Fast/Wide Ultra SCSI
Server Management	ALR InterManager™ with ActiveCPR™	ALR InterManager™ with ActiveCPR™	Compaq Insight Manager™
Power Supply	325 Watts	**700 Watts** (1050 opt.)	750 Watts
Redundant Hot-pluggable N+1	Not Available	Standard	Optional
On-site Service	1 Years On-site Service	3 Years On-site Service	3 Years On-site Service
Factory Warranty	5 Year/36 Month	5 Year/36 Month	3 Year
IDC Estimated Street Price	**3,085**	**12,763**	13,431

intel inside
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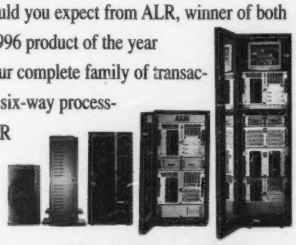

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Briefs

How do you keep your directories in sync?

Base: 50 Fortune 1,000 companies

Source: Forrester Research, Inc., Cambridge, Mass.

Unix capacity planner

Landmark Systems Corp. in Vienna, Va., has extended its suite of tools for managing the performance of hosts and distributed servers.

PerformanceWorks Predictor seeks to help Unix administrators plan future capacity needs. It lets them review past trends and forecast the effects of changes in workload volumes or new applications, for example. Pricing starts at $20,000.

NT management tool

Master Design and Development, Inc. in San Ramon, Calif., recently released Version 2.0 of its Trusted Enterprise Manager software, which provides secure Windows NT Server administration. The software uses its Active Collections technology to enable network administrators to assign one or more sets of user administration rights to each user. The software is available now. A 25-user license costs $375.

Antispam mail

Information Electronics, Inc. in St. Simons Island, Ga., is shipping Eureka Gold, a Simple Mail Transport Protocol electronic-mail server with built-in antispamming features. The software can detect junk E-mail, exclude users or domain names from sending E-mail to you and restrict access to unwanted World Wide Web sites. Eureka Gold runs on Unix and all Windows platforms. It costs $1,000.

E-mail: Not just for messaging anymore

▸ *Firms seek to use mail as application transport*

By Barb Cole-Gomolski

COMPANIES THAT have invested in electronic mail are looking at ways to have the systems do more than just courier messages and attachments.

Sites that have reliable messaging networks can use their networks to drive workflow applications or "push" information to end users and customers, users said. By leveraging E-mail, sites can save time and money on such applications, compared with developing stand-alone applications.

Now that Charles Schwab & Co. in San Francisco has switched from a mainframe-based mail system to Microsoft Exchange, the company is trying to use E-mail to deliver information to its online trading customers.

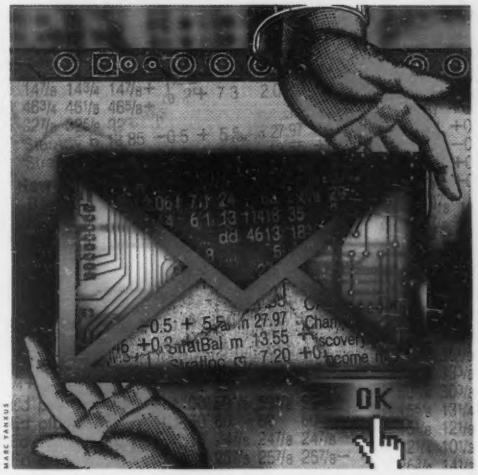
"Our goal is to be able to send an E-mail at the end of each day to our customers, telling them what happened in their [stock] portfolio that day," said Steve Ariana, vice president of architecture and strategy at Schwab.

OBSTACLES TO PUSH

But because Schwab has more than 750,000 online trading customers, "there are huge challenges to using E-mail as the basis of a push application on this scale," Ariana said.

First, the system may have to send as many as 1 million messages per hour. Second, the

Companies, page 58



MARC YANUS

Outsourced support helps focus IS resources

END-TO-END SERVICES

These new support services off-load daily management of complex systems and networks. Both offer monitoring by a staff of experts and field support from dispatch technicians.

Vendor/Product	Functions
Entex Information Services Rye Brook, N.Y. Enterprise SupportLine	Central help desk Remote monitoring and administration
Unisys Blue Bell, Pa. Distributed Computing Support Services	Network management center

By Patrick Dryden

INLAND PAPERBOARD and Packaging, Inc. lacks IS staff at its nine manufacturing plants.

At those remote sites, engineers responsible for operating computerized machinery fell in to the habit of fixing hard-disk drives and figuring out PC program quirks.

Soon they were being called away from their paper-production machines more often as central information systems rolled out enhancements at each site. Those included Windows NT servers for Microsoft Exchange and Internet access and upgrading 1,000 PCs to Windows 95 and Office 97.

To prevent further drain on engineers' time, Inland IS had to take responsibility for its networks and PCs. But IS managers didn't want to get mired in daily support demands, either.

"We're trying to focus our expertise on our business needs,"

Net support, page 58

Incredible shrinking WAN costs?

▸ *Cabletron switch module supports frame relay*

By Bob Wallace

CABLETRON Systems, Inc. users now can save on wide-area network charges by equipping their data center switches with a new module that supports frame-relay links.

Netlink Frame Relay Module enables Cabletron's high-end MMAC-Plus switch to simultaneously support more than 50 remote sites over frame-relay connections.

Analysts said frame relay is 30% to 40% cheaper than private lines.

"The advantage is chiefly economic [because] frame relay, unlike private lines, is very cheap and aggressively priced," said Steven Taylor, a principal at Distributed Networking Associations, a research firm in Greensboro, N.C. "Integrating what had been a stand-alone box with the switch also saves money."

Cabletron estimates it has an installed base of roughly 15,000 MMAC-Pluses. Cabletron built the module using technology it acquired last year when it bought Netlink, Inc., a maker of frame-relay access devices (FRAD) in Framingham, Mass. The module is a FRAD that plugs in to the MMAC-Plus.

ERIC POWER

Lowell Hospital's Edward Bianco: **Loaded data center switches can simplify user networks**

Edward Bianco, chief information officer at Lowell General Hospital in Lowell, Mass., said he is pleased with the add-on.

"Users win any time you integrate more into data center switches — partly because of savings and partly because we don't want to mix and match stand-alone products from multiple vendors," Bianco said. That can create service and support problems, he said. The hospital uses MMAC-Pluses in its backbone network.

The module costs $25,000 and is available now. Users will need to spend about $1,000 on a device to direct the frame-relay line to the data center switch. □

Companies adopt push-mail attitude

CONTINUED FROM PAGE 57

system will need a scalable directory in which to track customers' E-mail addresses, Ariana said.

Support for Internet messaging protocols will help ensure compatibility among the variety of E-mail packages used by customers, Ariana said. Schwab expects to select a standards-based messaging server by the third quarter.

WORKFLOW AID

Another way to make E-mail more useful is to use it as a driver for workflow applications.

"Our messaging back end drives our workflow applications," said Bob Crowder, a principal consultant at Information System Professionals in Camarillo, Calif. The firm helps the U.S. Navy build workflow applications that manage the repair of nuclear submarines.

The Navy uses Keyflow from Keyfile Corp. in Nashua, N.H. Keyflow lets users build workflow applications on top of Exchange and saves a lot of programming compared with building a workflow application from scratch, Crowder said.

"People think of E-mail as person-to-person, but we really need to take the next step." — Brad Friedlander, Arthur D. Little

Although some sites are looking to push E-mail to its limits, most companies don't use — or even recognize — the potential of their E-mail systems, said Brad Friedlander, a principal at Arthur D. Little, a management and technology consulting firm in Boston.

"People are not using a lot of the great stuff in E-mail because it may only work in a homogeneous environment," Friedlander said. Most large sites are still saddled with multiple messaging systems.

Many companies fail to use E-mail to do simple things such as automatically E-mailing weekly status reports to co-workers or pumping information directly into operational systems. Instead, they continue to distribute paper reports and forward expense reports manually.

"People think of E-mail as person-to-person, but we really need to take the next step," Friedlander said.

He said one of the least-used capabilities is setting up an automated receiver — a mailbox on a computer — to drive a workflow process. That lets end users, for example, E-mail a time card directly to the computer that runs the company's time-keeping system. □

Net support

CONTINUED FROM PAGE 57

said Frank Gumino, manager of application development at Inland in Indianapolis. "It's wasteful for that $70,000 engineer to answer a spreadsheet question and for me to send two guys on the road to upgrade PCs." So Inland delegated various management chores to one of the two national services that launched last week.

Inland chose systems integrator Entex Information Services, Inc. in Rye Brook, N.Y., which introduced a central help desk and remote monitoring and administration service called Enterprise SupportLine.

Another option was Unisys Corp., which opened a network management center at its headquarters in Blue Bell, Pa., as the focal point for its Distributed Computing Support Services.

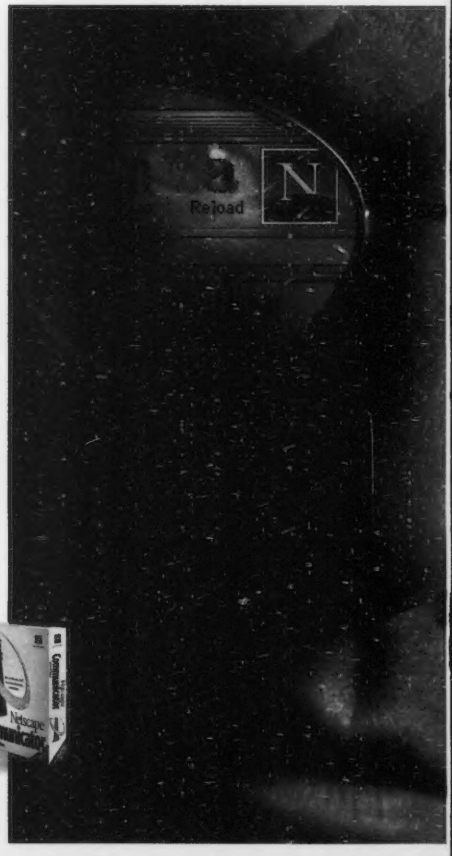
Both services offer expert support for IS managers around the clock. That includes network management, server administration, performance monitoring and a single point of contact for vendor support. To augment or replace IS staff, each also offers a help desk backed by field technicians available for dispatch nationwide.

As many as 80% of organizations such as Inland will outsource daily support tasks to external service providers to reduce costs and increase efficiency, according to projections by Forrester Research, Inc. in Cambridge, Mass.

HELP TO GROW

Support, rather than savings, was the factor that led Inland to partner with Entex, Gumino said. "This wasn't a cost-based decision, but a realization that we need help in order to grow," he said. "Hardware and software change so rapidly that a company like Entex is better suited to handle it for us."

Premium network service from Unisys costs about $250 per router per month, for example. That includes full-time monitoring, problem isolation and resolution and maintenance of the router configuration files. □



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SHORTS

Projected growth

Dataquest in San Jose, Calif., recently forecast five-year compound annual growth rates of more than 30% for Microsoft Corp.'s Windows NT and 20% for IBM's OS/2 Warp Server licenses. Those projected growth rates compare favorably with the 15% compound annual growth rate that Dataquest estimated for Novell's IntranetWare and all Unix platforms through the year 2000.

Mail migration

San Diego-based Qualcomm, Inc. is shipping Eudora Migration Utilities (EMU) Version 1.0, software for converting from Lotus Development Corp.'s CC:Mail to Eudora. Future versions of EMU will support other electronic-mail systems. A single-user version of EMU is free, and a multiuser version costs $349.

CA's Unicenter TNG keeps race car on track

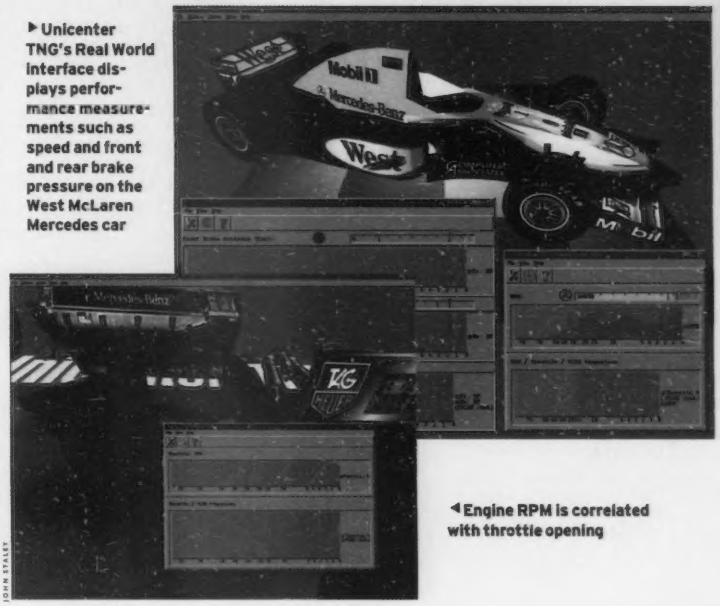
Instead of monitoring servers and routers, West McLaren Mercedes in Woking, England, applied a management software suite to track the performance of its Formula One race car.

Grand Prix racing is a costly business and certainly competitive. The team found an efficient way to measure everything from throttle response to the g force exerted on the driver with Unicenter TNG software from Computer Associates International, Inc. in Islandia, N.Y.

The team linked its monitors and CA's agents so members can watch critical information through Unicenter TNG's graphs and three-dimensional interface. Similarly, information systems managers can monitor the power level and temperature in remote server rooms or wiring closets.

The 3-D ability of the software — designed to let IS managers "fly" through maps of network topology — also let the team navigate through maps of European race courses.

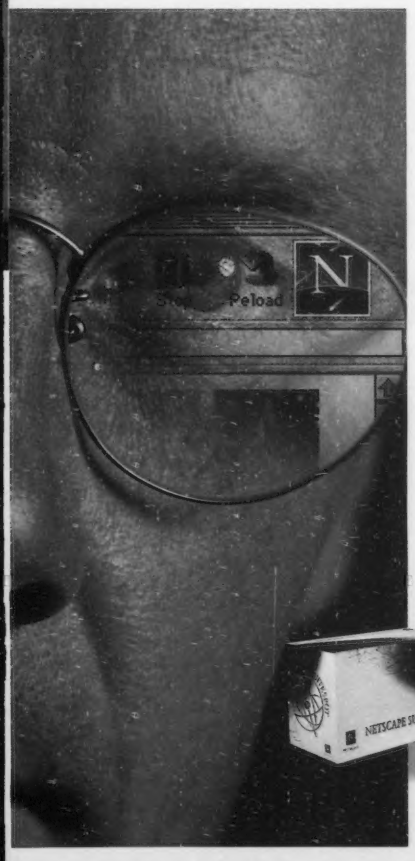
— Patrick Dryden



JOHN STALEY

▶ Unicenter TNG's Real World interface displays performance measurements such as speed and front and rear brake pressure on the West McLaren Mercedes car

◀ Engine RPM is correlated with throttle opening



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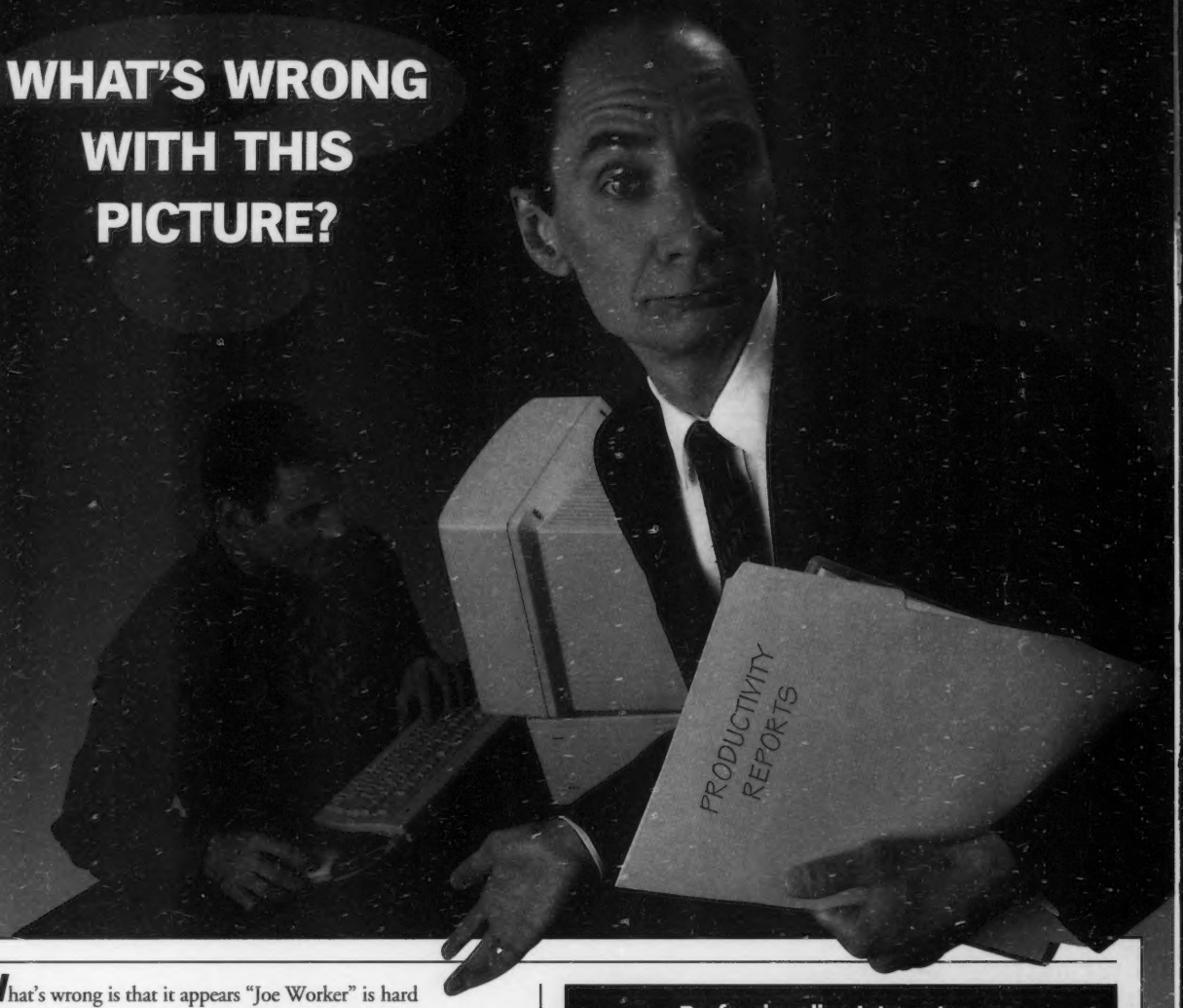

What's wrong is that it appears "Joe Worker" is hard at work. But what's really going on is frivolous surfing.

The truth is 40-60% of Internet activity is spent in unproductive sites and all this "inactivity" is costing corporations thousands of dollars in lost productivity. Employees may look busy but the reality is they're spending too much time in non-business related sites.

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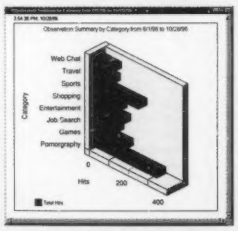

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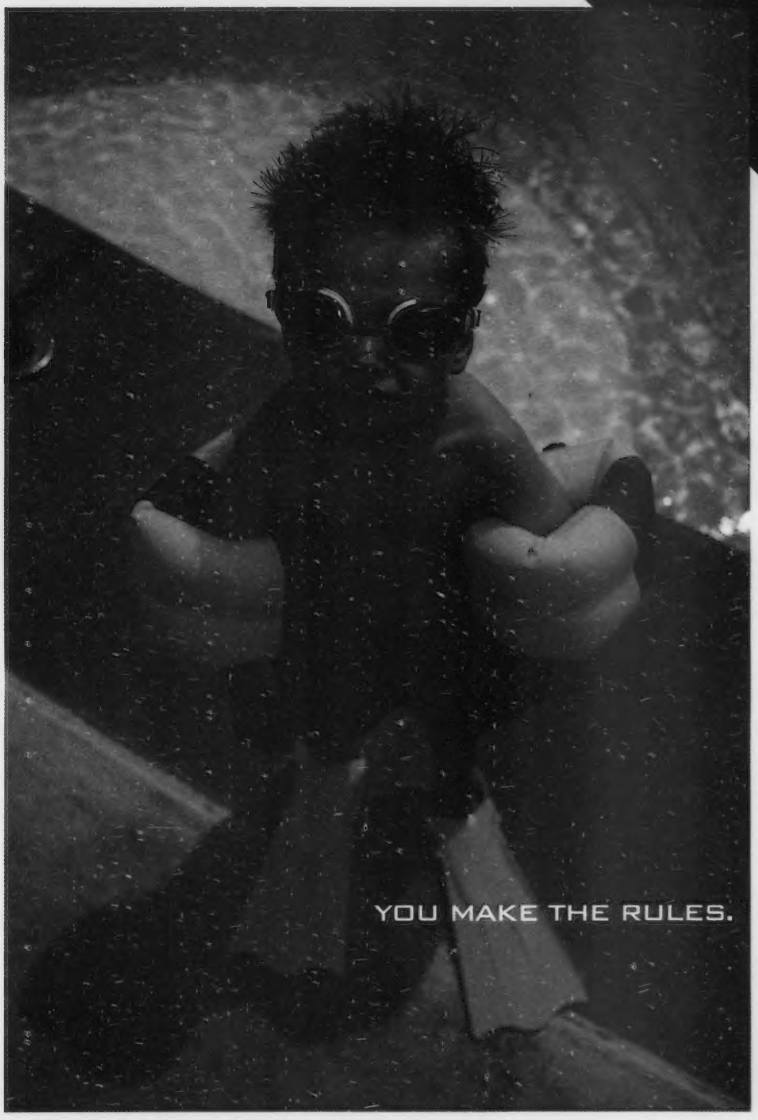

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NEW PRODUCTS

PICTURETEL CORP. has announced Live200 Version 1.5, a desktop videoconferencing system for Windows 95.

According to the Andover, Mass., firm, the latest version supports the T.120 multipoint data-collaboration standard, which works with Microsoft Corp.'s NetMeeting 2.0.

The system also allows continuous multipoint audio and video. Live200 works over a standard switched digital network. It can be used with an Asynchronous Transfer Mode network using an interface card by First Virtual Corp.

It costs $1,495.

PictureTel
(508) 292-5178
www.pictel.com

NETWORK APPLIANCE, INC. has announced Data OnTap 4.1, a network data access appliance to deploy Windows NT applications in Unix networks.

According to the Santa Clara, Calif., company, Data OnTap 4.1 delivers Common Internet File System throughput of 10.9M bit/sec.

Pricing starts at $1,950.

Network Appliance
(408) 367-3000
www.netapp.com

CLIENTELE SOFTWARE, INC. has announced add-on features to Clientele, customer service software for small and midsize enterprises. The add-on modules are Defect Tracking, Training and Inventory.

According to the Tualatin, Ore., company, Defect Tracking lets users easily report, track and close defects in a Clientele database so departments can share key customer and product information. The Training add-on lets users track the training needs of customers. The Inventory add-on provides an inventory management system.

Clientele Training costs $1,990; Clientele Defect Tracking costs $4,975; and Clientele Inventory costs $9,950.

Clientele Software
(503) 612-2600
www.clientele.com

WAVE TECHNOLOGIES INTERNATIONAL, INC. has announced the Novell IntranetWare CNE Self-Study Program, a training curriculum for information technology professionals who hope to master IntranetWare and prepare for certification exams.

According to the St. Louis company, self-study courses include administration; installation and configuration; and service and support. Instructional manuals and CD-ROMs are included, and a 1,000-question practice test is available separately.

Pricing starts at $995.

Wave Technologies
(800) 994-1910
www.wavetech.com

NTP SOFTWARE has announced RAS Manager for Windows NT to help network administrators manage Microsoft's Remote Access Service (RAS) resources and ensure that remote users can log on to a company's network.

According to the Bedford, N.H., company, RAS Manager allows the creation of many parameters, including limits to the length of a session and the number of concurrent sessions for remote users.

RAS Manager costs $495.

NTP Software
(603) 641-6937
www.ntpsoftware.com

RANDOMNOISE, INC. has announced the availability of Coda, a Pure Java Web site builder that will let publishers of World Wide Web sites for intranets and the Internet create Web pages entirely in Java.

According to the San Francisco company, Coda's main features include precision layout and control of objects, component architecture that allows Coda to be completely extensible and an object-oriented approach to Web page design.

Coda costs $495.

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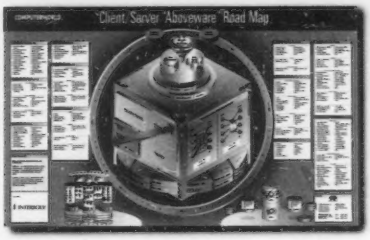

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Aug. 11	Supplement: Cost of Ownership: Network Computers	Jun. 27	July18
Sept. 8	Supplement: HR Online	July 25	Aug.15
Sept. 29	White Paper: Remote Access Distribution at SIM Fall Conference & Networld + Interop	Aug. 15	Sept. 5

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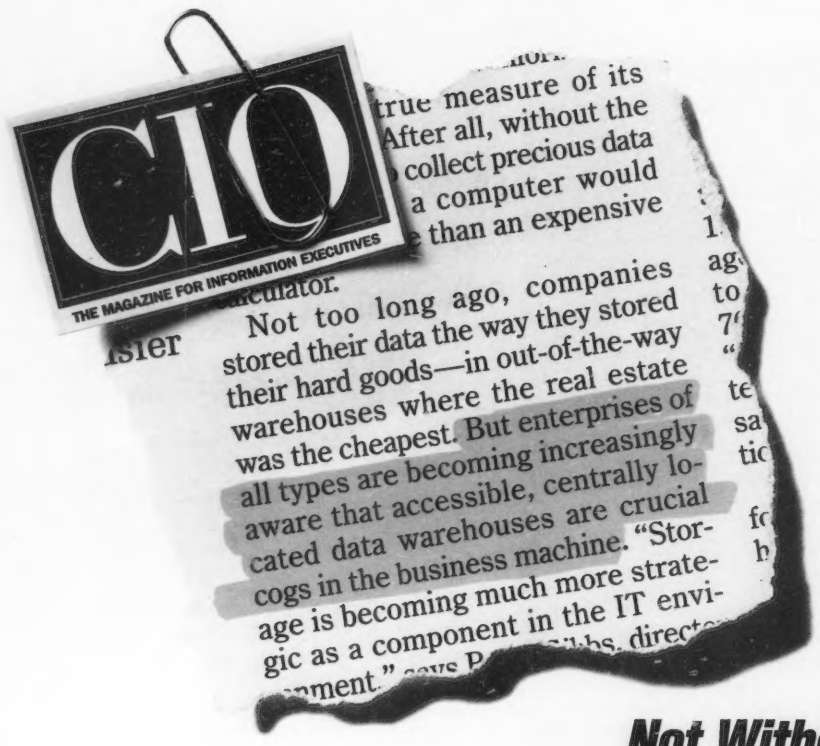

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Software

Briefs

InfoVista ports to Unix

InfoVista Corp. in Redwood City, Calif., has introduced the first Unix version of its Windows-based software for monitoring and managing service levels throughout a distributed client/server network. InfoVista next month will release InfoVista System servers and clients running on Sun Microsystems, Inc.'s Solaris. Pricing starts at $29,500. Versions will follow for Hewlett-Packard Co.'s HP-UX and IBM's AIX.

C++, Java profiler

Pure Atria in Cupertino, Calif., last week introduced a performance profiler designed to pinpoint bottlenecks in component-based applications. Visual Quantify is for developers who create C++ and Java applications and components using Microsoft Corp.'s Virtual Machine for Java. It is slated to ship at the end of the month and will cost $550 for a single issue.

PowerBuilder 6.0 beta

Sybase, Inc. last week unveiled the beta version of its updated application development tool, PowerBuilder 6.0. The latest version sports The Component Factory, which enables the tool to create components and add support for thin clients. The version also adds a Java proxy generator so middle-tier components can be accessed from a Java client. PowerBuilder 6.0 will support HP-UX, Solaris, Windows 95, Windows NT and AIX. It is set for release by year's end.

McAfee turns to Java

McAfee Associates, Inc., best-known for its antivirus software, has turned its attention to hostile Java and ActiveX code. The Santa Clara, Calif., vendor this week will unveil WebScanX for Internet electronic-mail and World Wide Web browsers, which uses McAfee's Hunter virus engine to look for malicious applets. WebScanX will cost $39.95. Corporate users may obtain it as part of McAfee's VirusScan Security Suite.

Borland users praise plan to target 'net and networks

By Sharon Gaudin
NASHVILLE

USERS OF Borland International, Inc. development tools are greeting with relief the company's broadened focus on networks and the Internet. It is a strategy that Borland CEO Delbert Yocam said will return the faltering software company to the black. Users said they hope he's right.

Borland executives at the company's eighth annual user conference last week said the key to bringing the company out of the red lies in enabling developers to build applications for more than client/server systems. It also lies in moving its products from small developer shops into the corporate world.

"My thoughts about what

Borland, page 66

Data analysis tools head for Web

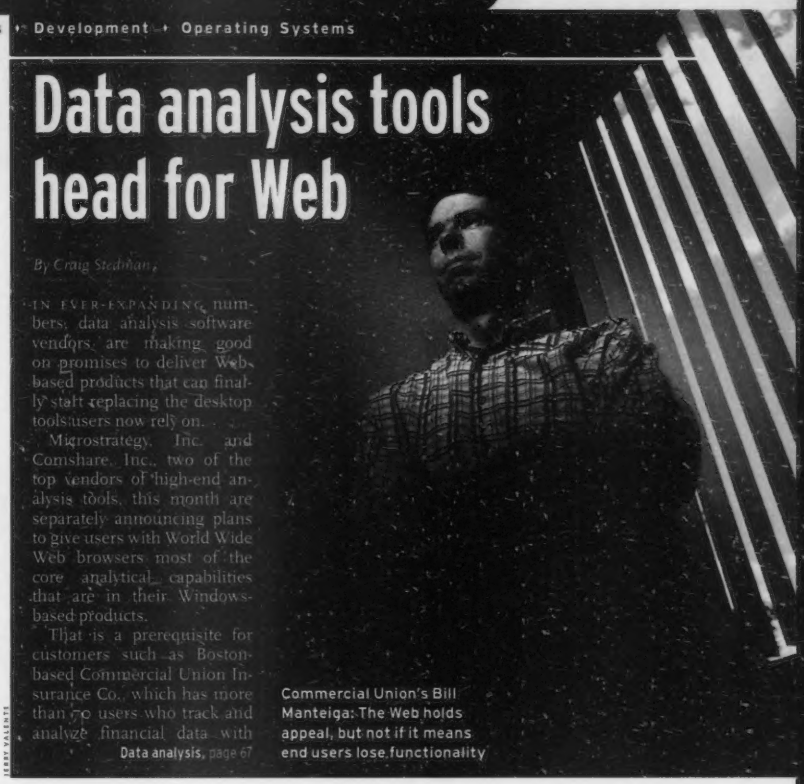
By Craig Stedman

IN EVER-EXPANDING numbers, data analysis software vendors are making good on promises to deliver Web-based products that can finally start replacing the desktop tools users now rely on.

Microstrategy, Inc. and Comshare, Inc., two of the top vendors of high-end analysis tools, this month are separately announcing plans to give users with World Wide Web browsers most of the core analytical capabilities that are in their Windows-based products.

That is a prerequisite for customers such as Boston-based Commercial Union Insurance Co., which has more than 50 users who track and analyze financial data with

Data analysis, page 67



JERRY VALENTI

Commercial Union's Bill Manteiga: The Web holds appeal, but not if it means end users lose functionality

Bridging the app gap

▸ *Start-ups offer packaged links among systems*

By Randy Weston

BRIDGING THE GAP between different client/server packages may no longer cost millions of dollars and require an army of code writers.

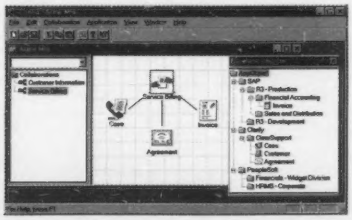
Several start-ups are offering ready-to-go packages that bridge different client/server systems, such as SAP AG's R/3 financial systems, human resource applications from PeopleSoft, Inc. and customer service software from Clarify, Inc.

"The whole idea of a ubiquitous middle level and collaboration between applications is a good one," said Barry Wilderman, an analyst at Meta Group, Inc. in Stamford, Conn.

"I really haven't seen many vendor pairs in the enterprise resource planning space roll up their sleeves and get busy working together."

Stepping in are companies such as CrossRoads Software, Inc. in Burlingame, Calif., and Oberon Software, Inc. in Cambridge,

Start-ups, page 66



CrossRoads' packaged bridge makes it possible to link applications without writing code for custom interfaces

HP integrates manufacturing systems, R/3

By Jaikumar Vijayan

HEWLETT-PACKARD CO. is giving corporations a way to tie their manufacturing systems to SAP AG's R/3 enterprise resource planning systems using Windows NT.

The Palo Alto, Calif.-based company recently announced a Windows NT version of its Enterprise Link middleware that automates the flow of data between SAP R/3 and manufacturing systems from a variety of vendors. Those vendors include ABB Group in Zurich; Honeywell, Inc. in Minneapolis; Kenonic Controls, Inc. in Calgary, Alberta; and Raytheon Co. in Lexington, Mass.

That kind of integration lets corporations conduct projects such as real-time inventory updates that reduce carrying costs and made-to-order manufacturing (see chart below).

"Enterprise Link on NT provides an adhesive bond between SAP R/3 and our manufacturing process data," said Ken Dawson, order-fulfillment technology leader at Celanese Acetate, Inc., a subsidiary of German chemical maker Hoechst AG.

The Charlotte, N.C.-based company uses the middleware to move information on items such as production orders and chemical recipes in real time between its business process systems and its manufacturing systems.

HP, page 66

HP's Enterprise Link for Windows NT

What it is: Middleware for integrating plant manufacturing systems with SAP R/3 business system

What it does: Real-time inventory upgrades, made-to-order manufacturing and real-time product costing

Borland gets kudos for Internet strategy

CONTINUED FROM PAGE 65

they need are almost identical to what they're doing," said Claude Vignali, information systems manager at Ericsson, Inc., a $15 billion telecommunications company in Stockholm. "I see them as the premier front-end tool developer, and now they're expanding that. And that's what they need to do."

Borland, a high-end application development tool company in Scotts Valley, Calif., has been known more for its financial slips lately than for its cutting-edge products.

The company, whose popular Delphi development tool has gained more than 600,000 users in the past three years, started having trouble several years ago. Its revenue stream has been sliced in half, from $464 million in 1993 to $215 million last year.

Users and analysts said Borland, which had long focused solely on building applications for the Windows platform, is finally making a good move to a cross-platform arena. After expanding its Delphi and C++Builder tools to run on IBM AS/400 midrange systems, Borland is turning its attention to Java, a language that is gaining popularity for its cross-platform capabilities.

The company's JBuilder Java tool is due this quarter, but many wonder if that means Borland is running behind the pack. Other major vendors, such as Symantec Corp., Sun Microsystems, Inc. and Microsoft Corp., already have their products on the market. Borland's is still in testing.

But Yocam said JBuilder isn't behind the curve.

"We believe greatly in Java, but there have not been the tools to build serious applications," he said. "JBuilder is built on the latest version of the [Java Development Kit], and it'll be the first time industrial-strength applications can be built in Java."

FEATURES OF J++BUILDER

- Designed to build 100% Pure Java applications and JavaBeans
- Visual development tool
- Available this quarter
- Demo available for download this week at www.borland.com/jbuilder/
- List price: $249.95

John Glanville, systems development manager at Platt's, a division of Standard and Poor's in New York, said he is growing less concerned about Borland's troubles.

And the company's focus on Java is part of that.

"It will give us some leverage for reusing code for Web development," Glanville said. "Internally, cross-platform isn't terribly important, but when we build applications for our customers, then that becomes very important. Java looks like it's going to be a key tool for Borland's future."

Vignali said JBuilder is coming out just in time for him because Ericsson is only now starting to try out Java. "Java is just now maturing enough to be used seriously," he said. "Java is almost ready, and JBuilder is almost out. That's good."

And Yocam said pulling in customers such as Ericsson is just what he is focused on. "We have to have the corporate accounts," Yocam said. Borland's Delphi has been popular in the small, customized developer shops, he said.

Evan Quinn, an analyst at International Data Corp. in Framingham, Mass., said Borland will have a better chance at attracting corporate users with tools that can build enterprise applications — whether for client/server systems, the Internet or intranets.

"Borland is positioning itself very well," Quinn said. "The pieces are falling into place. Don't bury them yet." □

Start-ups bridge the app gap

CONTINUED FROM PAGE 65

Mass.

The middleware acts as a bridge between applications, linking data so that information entered in the order management software in R/3 will populate Clarify's customer service system, for example. The result is that customer service representatives can give customers accurate information on when an order was shipping or other pertinent information that would usually take time to gather from the disparate systems.

Companies currently have to write their own links for such integration.

"Frankly, while it is essential to integrate, it would be nice if I did not have to spend all that professional talent on building the integration," said Maynard Webb, chief information officer at Bay Networks, Inc. in Santa Clara, Calif.

Bay Networks is currently installing CrossRoads' product to link its R/3 order management system with Clarify's customer service management software. Webb said Bay initially had to build its own interfaces between the applications but is now switching to the packaged bridge. The company will save money and time with the switch by not having to dedicate programming staff to write new code every time either software system is upgraded, he said.

Webb also said by using the packaged bridge, the company avoids the potential problem of a new programmer not being able to understand a previous programmer's code.

CrossRoads' product is designed to avoid such problems. The central part is called the collaborator, which acts as a standalone middleware product that transfers data between the applications. It sits between two "connectors" that are application-specific, so that a SAP connector will hook an R/3 system to the collaborator, then a connector for another application such as Clarify will link to the other end of the collaborator.

NO REWRITING

For users, the product means having only to upgrade or change out the connector ends when upgrading software or changing products, not dedicating staff to rewrite the interfaces.

Wilderman said such software is needed for the moment, but firms such as CrossRoads and Oberon will need to act fast to stay ahead of the market, because many of the large enterprise resource planning vendors are buying or partnering with smaller niche players and linking the products themselves.

Webb said he will always see a need for such software, especially at a company such as his, which is adding new systems quickly and forming close relations with business partners.

"We are averaging an acquisition a quarter, and I have to find ways to integrate those different systems as quickly as possible," Webb said. "I can do that with [a packaged bridge] like CrossRoads. And once we figure out what we want to do with electronic commerce and cross-company linking of software, I get even more jazzed about what these bridges can do." □

HP integrates systems, R/3

CONTINUED FROM PAGE 65

"Previously, we had a system that we developed in-house that literally passed this information back and forth in batches," Dawson said.

Porting HP Enterprise Link to Windows NT provides an SAP integration option that matches the manufacturing sector's move to Windows NT as an operating system that supports manufacturing and process-control technologies, analysts said.

EASY INTEGRATION

"The primary thing is that [HP middleware] makes it easy for users to integrate basically any shop-floor control product with R/3," said Steve Clouther, vice president at Automation Research Corp. in Dedham, Mass.

HP's product allows multivendor integration, unlike products from companies such as The Foxboro Co. in Foxboro, Mass., which only allows integration of its specific manufacturing system with R/3, Clouther said.

The main elements of HP's Enterprise Link middleware are a graphical configuration tool and a run-time data server. The configuration tool lets users define what kind of data needs to be moved between the manufacturing system and the business systems. And it lets users specify when and where to move the data. Actual data flow is handled by the data server.

Available now, the configuration tool and data server costs $3,000. □

NEW PRODUCTS

WESTING SOFTWARE, INC. has recently announced Responsive Time Logger, Version 3, software for streamlining time-tracking, billing and expense recording.

According to the Corte Madera, Calif., company, Version 3 uses "quick fill-in combo boxes" that anticipate the work a user is about to enter. If a user enters a few characters of a client's name, Time Logger fills in the rest, adjusting automatically for capitalization. Other information can be entered with fewer keystrokes than previously.

Responsive Time Logger costs $129.

Westing Software
(415) 945-3870
www.westinginc.com

NSTOR CORP. has announced AdminiStor Agent for Windows NT, a simple network management protocol software that monitors the health of certain NStor storage subsystems.

According to the Lake Mary, Fla., company, the product monitors any NStor subsystem that is RAID-based and SCSI-based, either remotely or from the server console. Users receive Simple Network Management Protocol traps that provide alerts on the status of the NStor RAID subsystem.

The price is $19.95 for an upgrade to an existing NStor RAID subsystem.

NStor
(407) 829-3624
www.nstor.com

COMMENTARY

A server for Web commerce

CHARLES BABCOCK

MANY BUSINESSES face a daunting task as they decide to put customer-oriented, interactive processes on the Web. To capture user preferences and then respond with order-entry or other information, they need to move beyond ordinary Web publishing to high-capacity database applications.

That transition won't be easy. It will require IS expertise, not just HTML experience, and it will require a component that hasn't been part of legacy or client/server systems — the Web database application server.

A Web application server adds a third tier to the familiar client/server architecture. In effect, the application logic is placed between the Web server and the database engine, where it manages the database connection on behalf of the browser.

That job isn't as simple as it sounds, given the peculiarities of the Web. At least your client/server systems are able to maintain a continuous connection between the desktop and the database server when there's a session between the two.

But how does one manage a session when the connection over the Web is fleeting and frequently interrupted? When the Web server knows very little about the user's client?

If more than one interaction with the database is required, today's HTTP server "forgets" the first contact, even when the same client comes back seconds later.

HERE'S THE ANSWER

The answer to the stateless nature of the Web is the Web application server. The application server opens one or more connections with the database, stamps each user session with a unique identifier and returns results to the user's browser after several interactions with the database.

In some cases, the application server will be a software addition to your existing Web HTTP server. Indeed, one of the major database vendors, Oracle, added application serving capabilities to its proprietary Web server and renamed it Web Application Server.

But the application server functions more effectively when it possesses its own hardware and memory resources. By putting the application server on its own platform, a webmaster can extend the life and scalability of the HTTP server and the database server. And the database server can better respond to queries when it doesn't have to manage user sessions.

To date, a common way to handle the connection has been for your browser to open a Common Gateway Interface scripting application on the Web server. But before a result can be returned, the Web server responds to the browser by launching an interpreter for the application. Then it launches the application, accesses the database engine, acquires the result, shuts down the application and closes the interpreter. That process, combined with downloading Web pages — for many concurrent users — will bring the average server to its knees.

Consequently, Web application servers are emerging from users' demands for the same kind of response, specific to their needs, that they would get from a client/server system.

Web application servers are expensive, ranging from $6,500 to $35,000, about as much as the database engines themselves. They are complicated to set up. And you will be dealing with companies and products that aren't exactly household names: Sapphire/Web from Bluestone Software in Mount Laurel, N.J.; NetDynamics Application Server from NetDynamics in Menlo Park, Calif.; and Kiva Enterprise Server from Kiva Software in Mountain View, Calif.

LITTLE CHOICE

But you don't have much choice. The better-established companies are trying to plant the application logic in the database management system (IBM with DB2, Informix with Universal Server), in a proprietary Web server (Oracle) or in the client (PowerBuilder).

The Web application server manages the problems of the stateless nature of the Web and links to a variety of Web servers and database engines. As the query load builds, the application server provides flexibility and scalability; it can initiate multiple copies of itself on one server or across multiple servers.

Your company wants to move business processes to the Web, but its success in doing so depends on the scalability of the application that it implements. When success is equated with high traffic, who wants a Web database architecture that turns away customers, because of a lack of capacity, to answer the knock on the door? □

Babcock is a technical editor at Mainspring Communications, Inc. (www.mainspring.com) in Cambridge, Mass.

Pirates plague software market in Jordan

By David Burns
AMMAN, JORDAN

HIGH-TECH pirates are pillaging the computer software market in Jordan.

Bootleggers brazenly advertise their stock and occupy high-rent storefronts here, unafraid of prosecution — and for good reason. The police haven't made a copyright-related arrest in recent memory. And even if they did, Jordan's copyright law itself may actually protect the pirates.

The country's copyright law protects only original products on file at the National Library.

Local software developers can beat the counterfeiters by protecting their programs before mass production begins. But multinational corporations that focus on bigger markets may not file the Jordan-specific paperwork before illicit copies arrive in Jordan from abroad.

The figures at play are significant. Computer software pirates drastically undercut authentic distributors, selling $300 software programs for $30 or less.

BIG MONEY INVOLVED

"My store is losing about 10,000 Jordanian dinar [about $14,500 U.S.] per month" to counterfeiters, said Said Ishak, general manager of East Star Computer, a Microsoft Corp. distributor here. "Selling pirated copies is the only type of software business that is booming in this country."

Ostensibly, the news of a growing software market looks good: A recent study conducted by International Planning and Research Corp. for the Software Publishers Association found that the Middle East and Africa regions are among the fastest-growing software markets in the world.

The catch is that the demand is being met by counterfeiters: The survey estimates that three out of four software applications used in the region are pirated, costing manufacturers more than $500 million in potential revenue last year.

Forgeries cost copyright-based industries — such as software companies — more than $8.2 million last year in Jordan alone, according to the International Intellectual Property Alliance. □

Burns writes for the IDG News Service in Amman.

Data analysis on Web

CONTINUED FROM PAGE 65

Microstrategy's DSS Agent software for Windows.

"Right now, it would be a step backward if we switched over" to the companion DSS Web product, said Bill Manteiga, data warehouse director at Commercial Union.

But an upcoming DSS Web 5.0 release "is a pretty dramatic leap ahead," Manteiga said. "It really looks like the [Windows] application."

Commercial Union wants to switch to DSS Web as more of its field offices are equipped with decision-support tools. But Manteiga said he may wait for a promised release early next year that will merge Microstrategy's Web and Windows products into a common code base and set of features.

Like most decision-support vendors, Microstrategy and Comshare initially rushed out server-based browser implementations that were more for viewing static reports than for doing true interactive analysis. But that wasn't good enough for Manteiga and other customers, who want to take advantage of the Web to spread analysis tools to more end users while easing the pain of support and software distribution.

Microstrategy announced DSS Web 5.0 for beta testing last week and said it should be ready for shipment early in the fourth quarter. The software, which does online analytical processing against relational data, still lacks some of the advanced query and reporting features that are in the Vienna, Va., company's DSS Agent client for Windows. But it enables end users to build reports and drill into data.

Comshare, in Ann Arbor, Mich., this week plans to release a more functional version of its software for doing multidimensional analysis of business performance from Java-enabled browsers. Commander DecisionWeb 2.0 adds new drill-down and calculation-building capabilities that previously could be had only with Windows, company officials said.

SOMETHING MISSING

TimberWest Forest Ltd., a Vancouver, British Columbia-based logging and lumber company, did a monthlong trial run with the first Commander DecisionWeb release that came out in January. "But it didn't have all the functionality we wanted," said Darrell Grekul, a business analyst at TimberWest.

Among the missing features was the ability to customize data views or to update the database with new information. The new release appears to fix those shortcomings and should be available on TimberWest's intranet this month, Grekul said. "The fact that we don't have to load new releases on everybody's desktops should save weeks for us," he said.

The moves by Microstrategy and Comshare follow announcements last month of lower-end analysis tools for the Web by desktop decision-support kingpins Cognos, Inc. in Burlington, Mass., and Business Objects SA in France [CW, June 9]. □

Is raw power all you need to build an enterprise-class solution? Unfortunately, that's all that some servers offer. So consider the HP advantage: the most powerful machine around— the lightning-fast HP 9000 V-Class Enterprise Server with 64-bit PA-RISC and new Hyperplane Technology... plus the advanced features for resilience, integration, security and management with HP-UX, HP's enterprise class operating environment... plus mission-critical services that are planned, designed, and delivered to ensure your multivendor environment is available on a global, 24x7 basis... plus enterprise class storage technology! It's a total enterprise solution. See for yourself at www.hp.com/go/9000servers Capitalize on chaos.

HEWLETT® PACKARD

Servers & PCs

Large Systems • Workstations • Portable Computing

Briefs

IS managers say the following are the most needed data center storage features:

- Ability to store data from multiple platforms at one time
- Backup management
- Simplify migration of data from old systems to new
- Support for proprietary and open systems data

Source: Find/SVP, New York

HP does discounts

Hewlett-Packard Co. has rolled back prices on its PCs by up to 24% in a bid to compete with Compaq Computer Corp. Under the new prices, a system based on Intel Corp.'s 233-MHz Pentium II chip, with 32M bytes of memory and 2.5G bytes of hard disk storage will cost $2,040 — about 20% lower than the current price. Compaq has already made similar cuts; IBM is expected to follow suit.

Fibre-channel storage

ATL Products, Inc. in Irvine, Calif., has introduced a line of Windows NT and Unix digital linear tape libraries that can support high-speed fibre-channel host adapters via a Peripheral Component Interconnect (PCI) expansion bus. The P1000 Series libraries also include World Wide Web-based library administration software and can be upgraded to a backup server simply by adding a PCI single-board computer running commercial backup software to the tape library. Pricing starts at $25,000.

Pinnacle cuts prices

Pinnacle Micro, Inc. in Irvine, Calif., last week cut the price of two of its optical hard drives by more than 35%. A 4.6G-byte Apex internal optical drive dropped to $1,195 from its previous price of $1,895. The Vertex 2.6G-byte internal drive dropped to $995, from $1,395. An Apex optical disc is now $99, down from $169.

Laptop tools added; users want more

By Kim Girard

RESPONDING TO user demand for laptops that are as easy to manage as PCs, laptop vendors are busy adding a host of remote management features to their machines.

Compaq Computer Corp., IBM and Hewlett-Packard Co. are among the companies installing management feature upgrades in their new portables. In the meantime, a group of laptop vendors is working to hammer out standards for how remote systems communicate with servers.

Analysts said a shortage of time for network managers and help desk staff, software installation headaches and complete lack of management software

Laptop, page 71

Iron data shuffling simplified

▸ *Software allows real-time migration*

By Tim Ouellette

THE DATA juggling act is beginning to get easier for storage managers.

Users are starting to try out Amdahl Corp.'s Transparent Data Migration Facility (TDMF), mainframe software that lets users move data among any disk subsystem in their data center [CW, April 7].

MAINFRAME DATA STORAGE

"[TDMF] gives us flexibility, because we are putting in cheaper disk [arrays] right now and want to get them into production, while moving the older systems to our test bed," said Bob Lembo, manager of mainframe and storage services at American Stores, Inc. in Dublin, Calif.

Currently, migration packages from major storage vendors, which usually come as proprietary hardware/software bundles, require that the data move among their own subsystems.

TDMF's flexibility is crucial as corporate demand for storage increases and prices drop, leaving information systems departments scrambling to shuffle data among disk subsystems (see chart). Now, users such as Lembo can choose a new disk subsystem based on their specific storage needs, rather than on what their vendors can provide.

For example, a data center may want to keep its marketing data on one system and financial information on a more secure system. Or it may move old data to slower disk arrays and keep the most current data on high-speed systems.

With TDMF, "we were able to mix data from older IBM and Amdahl disk subsystems onto a new platform," said Tom Gear, a systems programmer at Orlando

Data, page 70

MOVE IT OR LOSE IT

Users want data migration tools such as Amdahl's TDMF, which moves large chunks of data to different disk subsystems for the following:

- Disaster recovery
- Storage load balancing
- Year 2000 conversion testing
- Installing and filling new disk subsystems
- Making larger volumes of data available for business use

Pentium II servers get an ECC boost

▸ *Dell, NEC add error checking to systems*

By April Jacobs

HARDWARE VENDORS are lining up to supply Pentium II-based servers with error-correcting memory, which lends additional credibility to Intel Corp.'s newest chip.

Dell Computer Corp. in Round Rock, Texas, and NEC Corp. in Mountain View, Calif., announced systems last week that feature the Pentium II processor with Error Checking and Correcting (ECC) memory. The systems are scheduled to hit the street in the third quarter of this year. Sources close to Compaq Computer Corp. in Houston said the company will announce systems within the next several weeks and ship them around the same time.

ECC memory could make the Pentium II more stable as a server platform because it helps prevent errors — including corrupted data or calculation errors — that might otherwise bring it down.

On the desktop, Pentium II reception has been warm, particularly among high-end desktop users, such as those who have compute-intensive financial, graphics and engineering applications.

But some users said they will wait for the Pentium II to prove its edge before seriously considering it.

W. Todd Sims, deputy chief information officer for the city of Boston, said he wouldn't consider swapping out large numbers of servers before testing them extensively.

"Typically, what we do is start out with a server in the [information systems] department, and once we've confirmed it performs well, we try it out with nonmission-critical applications," Sims said.

"We're looking for the most cost-effective server with highest performance," Sims said.

Pentium II, page 71

DELL POWEREDGE 4200

- Processor: 233-MHz, 266-MHz or 300-MHz Pentium II
- ECC memory: 64M bytes
- Cache: 512K bytes
- CD-ROM: 8-speed
- Starting price: $5,349

Miniserver touts quick 'net setup

By Matt Hamblen

USERS IN workgroups and at small and medium-size companies increasingly want full-time Internet connections that can be set up easily at low cost.

The latest product striving to serve their needs is InterJet 200, an Internet/intranet "miniserver" from Whistle Communications Corp. in Foster City, Calif. The product is sparse by the latest PC standards. It uses an Intel Corp. 486 or compatible processor with 8M bytes of memory (see chart, page 70).

Hans Erickson, chief information officer at the Greater Detroit Chamber of Commerce, said he has tested InterJet 200 for six weeks. He said he found it a suitable replacement for the hardware, software and network routers he was planning to buy separately and assemble.

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Miniserver, page 70

Data shuffling made easier

CONTINUED FROM PAGE 69

Health Center in Orlando, Fla. "I can't see where it would make any difference what [storage] vendor you choose with TDMF running."

Analysts have given TDMF high marks because it works in real time and can handle restarts without a hitch. Other tools require users to bring an application off-line when migrating data to a new storage system, which cuts in to valuable production time, they said.

"We had issues with other data migration facilities, and the fact that you can stop TDMF in the middle of the process was important," Lembo said.

Although its high-end disk sales lag behind IBM and leader EMC Corp., Amdahl officials said they are serious about separating the storage hardware choice from the TDMF software. The Santa Clara, Calif., firm's customer service division, not the storage group, sells TDMF, company officials said. In fact, Amdahl's new focus on service and consulting deals has led to faster growing revenue than the firm would have seen had it continued to rely solely on mainframe and storage hardware sales, industry watchers said.

TDMF pricing starts at $60,000 per CPU.□

Miniserver

CONTINUED FROM PAGE 69

"It's all in one box and less expensive than the alternative and very easy to administer. ... It made life pretty easy for us," Erickson said. Buying the parts separately would have cost about $3,500, plus labor, he said.

Tim Mathews, MIS director at Proto Engineering Corp., a maker of printed circuit boards in Sunnyvale, Calif., said the InterJet 200 has saved him "major amounts of time in setup and daily chores."

INTERJET 200 MINISERVER

Processor: Intel 486 or compatible
Hard drive: 2G bytes
Network connection: Up to T1 speeds
Administration: Web-based from any desktop in the network
Price: $3,495

Mathews said if he sets up an electronic-mail account with the device, he can enter the name and password of a new user from his workstation instead of going to a server in another building.

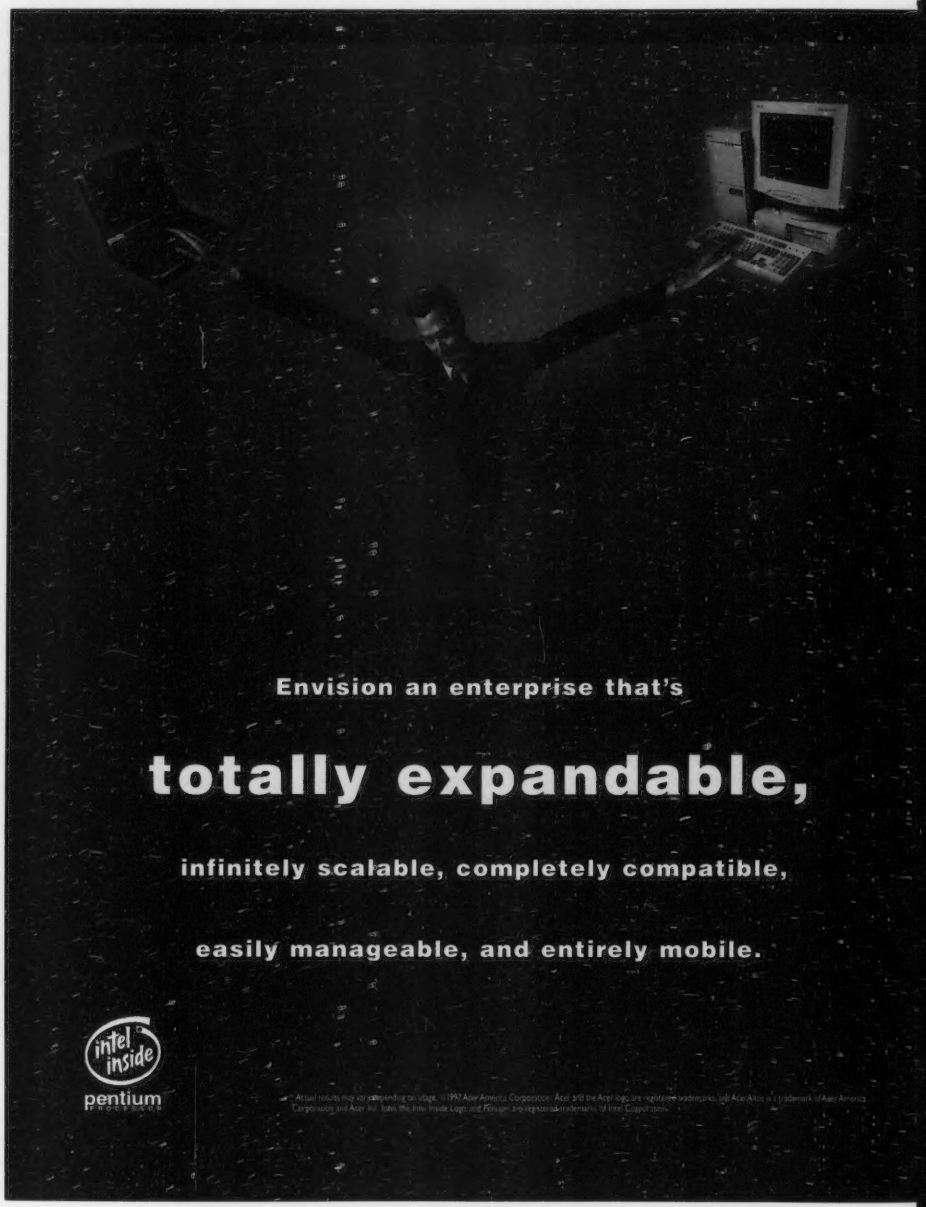
ADDED IMPROVEMENTS

Whistle Communications already has entered the miniserver, or Internet peripheral, market with InterJet 100 and 120, which offer dial-on-demand Internet connections for up to 100 users. But the InterJet 200's improvement is a full-time connection for 56K bit/sec. to T1 networks.

Analysts said Whistle is competing in a growing field that includes Cisco Systems, Inc. in San Jose, Calif., and MicroTest, Inc. in Phoenix. Cisco has Micro Webserver, which costs $995. MicroTest recently announced WebZerver, which costs $1,595 [CW, July 7].

Analysts said Whistle's lower-end products such as the InterJet 100, at $1,995, may best compare to such competitors. But Whistle officials and analysts said the InterJet 200 doesn't require a router as Cisco's product does.

Kimball Brown, an analyst at Dataquest in San Jose, said one of the biggest benefits of InterJet 200 is that firms can consolidate a department's list of individual Internet access accounts into one full-time connection that allows a workgroup World Wide Web site and E-mail.□



Laptop tools added, but users want more

CONTINUED FROM PAGE 69

that works with different laptop makers' machines have complicated remote management of mobile computers. And information systems managers said they don't have tools to track performance when laptops aren't connected to a docking station.

Fred Pantaleano, director of marketing and sales at The Progressive Insurance Co. in Mayfield Village, Ohio, said he worried about the complexity of adding new software and the overhead on the help desk to use it. Now, when a remote user's laptop goes down, no one in systems is aware of the problem. The machines are typically brought in for service after any hardware meltdown, he said.

"If there was a way to get early warning information, it would be valuable," said Pantaleano, whose company uses Dell Computer Corp. laptops.

ALL OVER THE PLACE

"I think the state of [management] software is pretty bad," said Ken Dulaney, an analyst at Gartner Group, Inc. in San Jose, Calif. "It's mishmashed together. It's all over the map."

The problem for remote users is that after they disconnect from a docking station, they are off the network and there isn't a way to monitor the system, Dulaney said.

Although management programs are getting slicker — they offer the ability to do inventory of remote systems and remotely get into a user's system to tweak problems — one analyst questioned whether users will bother to use them.

"I think the state of [management] software is pretty bad. It's mishmashed together. It's all over the map."
– Ken Dulaney, Gartner Group

"It hasn't been worth their time," said Nathan Nuttall, a research analyst at Sherwood Research, Inc. in Wellesley, Mass. "There's a lot of work involved in getting it up and going. For a network manager with 500 users, this is low on your things-to-do list."

Bill Weyrick, manager of data communications at Dartmouth-Hitchcock Medical Center in Lebanon, N.H., said for now, there isn't an easy way to track their Apple Computer, Inc., Compaq and Texas Instruments, Inc. laptops.

"It's a hard thing to do — other than [provide] telephone support," Weyrick said. □

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Pentium II

CONTINUED FROM PAGE 69

Although they may cost more than their Pentium Pro cousins, Pentium II-based systems will offer users higher performance for server-side, compute-intensive applications, such as database servers and Internet servers, said John Dunkle, president of Workgroup Strategic Services in Portsmouth, N.H.

Amir Ahari, an analyst at International Data Corp. in Framingham, Mass., said he thinks the Pentium II also would work well in workgroup situations. But its performance with larger, more complex applications isn't proved and could be unreliable.

"I would be surprised to see people adopting this as an enterprise server," Ahari said of the Pentium II-class hardware.

Dell's PowerEdge 4200 server, which features a 233-MHz Pentium II processor and 64M bytes of ECC memory, costs $5,349. Dell's 266-MHz models range from $7,687 to $11,373. □

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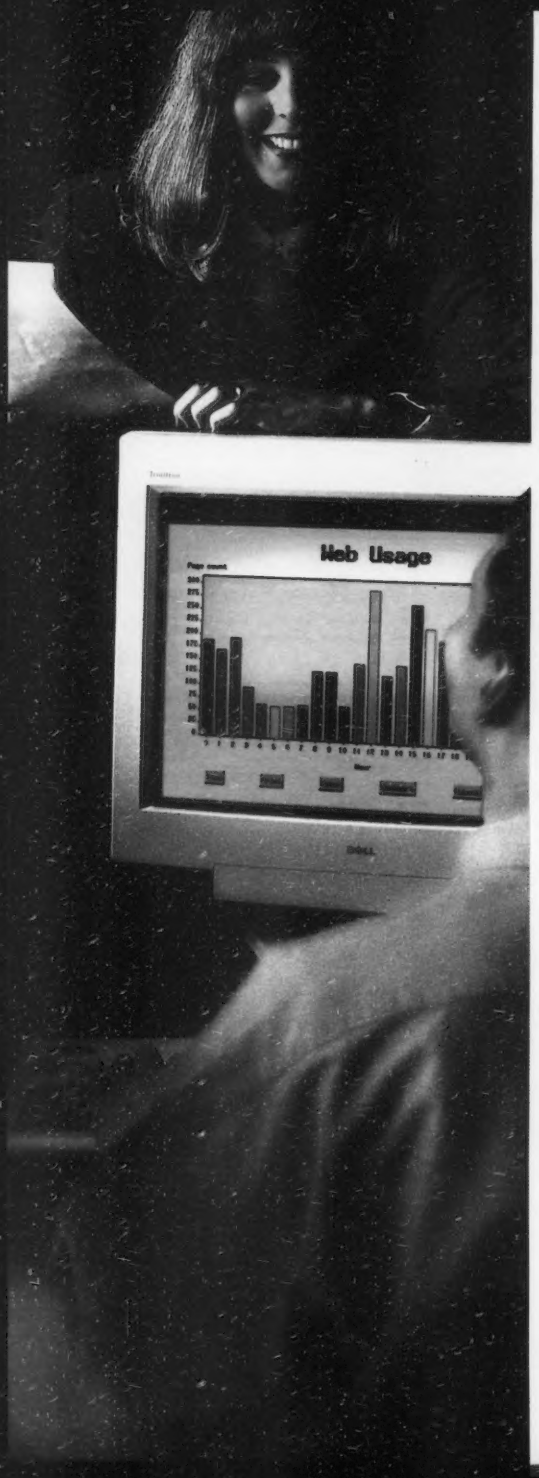

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Data Warehousing

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Briefs

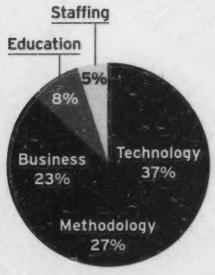
WhiteLight OLAP

A small software vendor in Palo Alto, Calif., is close to finishing development of online analytical processing (OLAP) software that is expected to be distributed by Sybase, Inc. Officials at WhiteLight Systems, Inc. said its software should be ready to ship in the fall. The software includes a relational OLAP server with a built-in cache for storing multidimensional calculations, plus front-end analysis tools for Windows and World Wide Web browsers. Neither WhiteLight nor Emeryville, Calif.-based Sybase would comment on Sybase's plans to resell the OLAP products.

Microstrategy for Web

Microstrategy, Inc. last week announced new client versions of its OLAP software that give Web browser users reporting and data drilling capabilities that the Vienna, Va., company offered only under Windows until now. DSS Web 5.0 is in beta testing and should be available early in the fourth quarter. Pricing isn't set, but Microstrategy said it will be similar to the current DSS Web cost of $17,000 for 20 users.

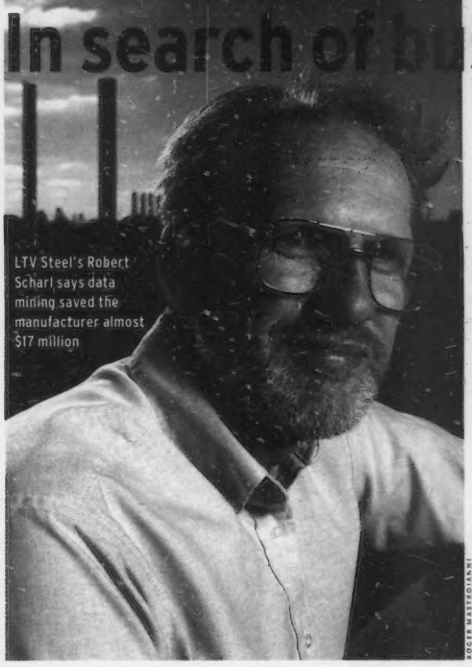
What is your biggest challenge in building a data warehouse?



Base: 10 data warehousing managers. All will be presenters at The Data Warehouse Institute's Third Annual Leadership Conference in Boston, Aug. 24-29. Their names, affiliations and projects are posted at www.dw-institute.com.

Source: The Data Warehouse Institute, Bethesda, Md.

In search of business value



LTV Steel's Robert Scharl says data mining saved the manufacturer almost $17 million

ROGER MASTROIANNI

▸ *Data mining tools distill data patterns*

By Linda Wilson

STEPHEN BROWN discovered an interesting situation buried in data about customer calls to a technical support center: Two support representatives consistently solved customers' problems less expensively than other representatives.

After discussing the results with management, Brown discovered the reason: The fiscally productive representatives knew a little bit about a lot of products, while the other representatives knew a lot about a few products. Because of their broad knowledge base, the productive representatives could help customers — no matter what the problem — over the telephone. The other representatives were more likely to resort to expensive remedies such as shipping new parts or dispatching field technicians.

Because of the findings, Brown's company, Automatic Data Processing, Inc. (ADP) in Roseland, N.J., has retooled the training program for new hires in the central computer hardware support center of its automotive dealer services in Portland, Ore.

MATHEMATICAL APPROACH

Brown, hardware support supervisor, discovered the relationship between customer representatives and productivity with a data mining software product from DataMind Corp. in San Mateo, Calif., that uses proprietary network agent technology. Other types of data mining products use other statistical techniques and artificial intelligence approaches such as neural networks to uncover complex patterns or models in data.

Statisticians have used some

In search of, page 76

COMMENTARY

A dirty business?

SHAKU ATRE

FIRST, THEY TOLD us to go work in a data warehouse, forklifting loads of data and doing lots of heavy lifting. We were told to establish total control over the company's data inventory so end users could order any combination of items at any time.

Before long, we were in the big boss's office, requesting the kind of hardware and staffing used at NASA to calculate interplanetary space shots. And we wondered whether we would need a U.N. peace-keeping team to help departments agree on what the terms "sale" and "customer" mean, so we could model the enterprise.

When the boss said we might be happier in outer space and put us on a stricter allowance, we looked into data marts. That was a way in which each user department could create a decision-support solution that would stand alone as a beautiful, tropical island of information.

Now they're sending us to the mines. The data mines. We're supposed to dig out diamonds of information. A diamond mine is the kind of place where — in a prison movie — they send lifers. Couldn't we just strip-mine for coal and avoid a bowels-of-the-earth excavation? If the metaphor holds true, we're in for some very dirty business, labored breathing and low pay in an effort to harvest baubles.

In a famous data mining example, a large retailer discovered that beer and diapers often

Atre, page 76

Digging for consumer gold in buying habits

By Linda Wilson

WHEN CUC International, Inc. and HFS, Inc. merge this fall, the combined company will have 168 million consumer records.

Talk about a marketing gold mine ripe for data mining.

CUC in Stamford, Conn., owns consumer home-shopping membership clubs that span areas such as travel, automobile and time-sharing resorts. The company also owns education and entertainment software titles.

HFS in Parsippany, N.J., owns Avis, Inc. car rental company, real estate companies and many hotel and motel chains.

Data mining techniques culled from CUC will help the combined company learn which consumers to target with which services and in which sequence to offer those services. It will

Consumer patterns, page 76

TRACEY ROLL

CUC's Jon Beyman: **By helping "developers understand who is more likely to buy a time-share," CUC did more business**

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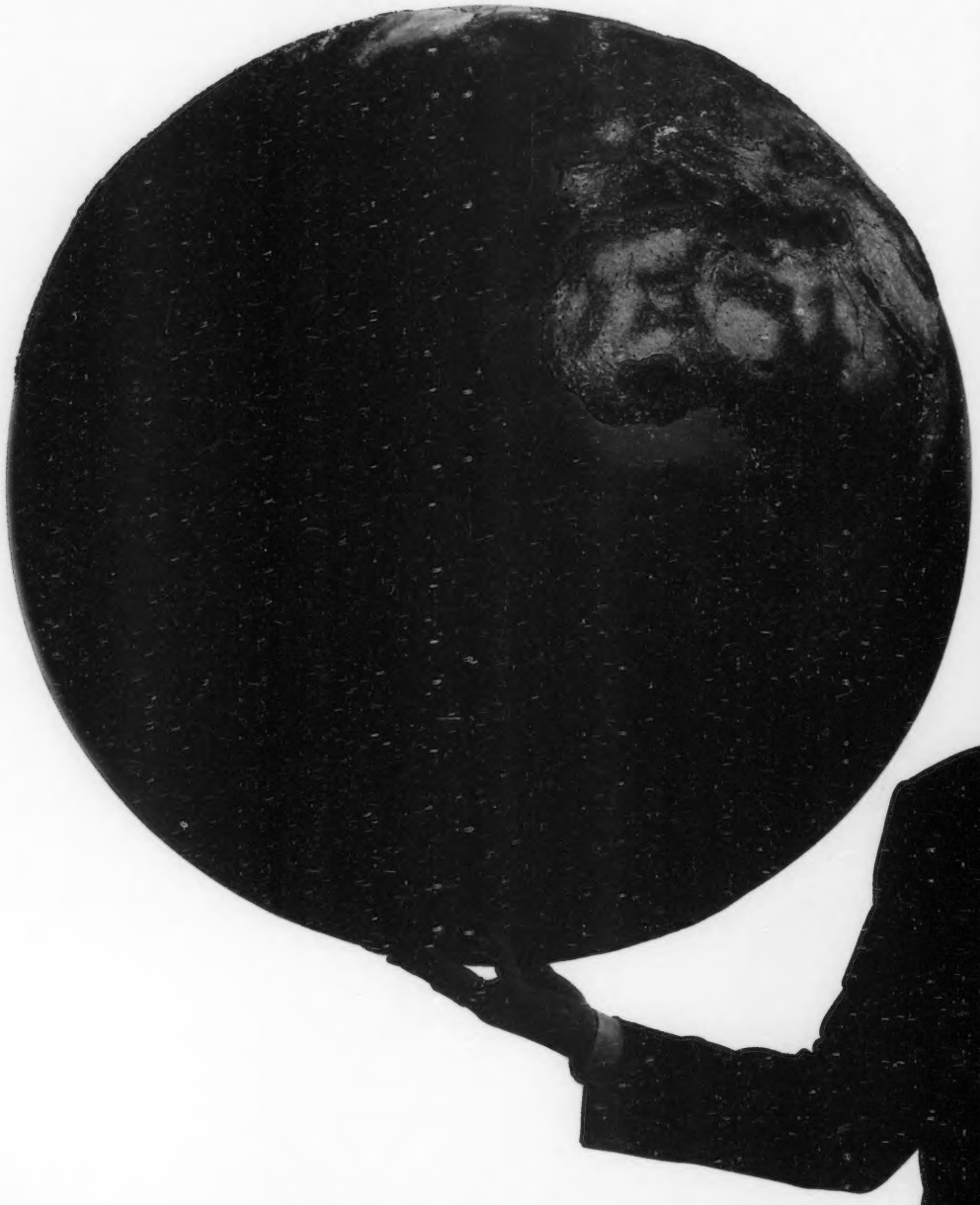

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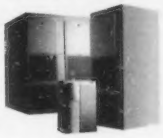

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NCR

Transactions in the Age of the Consumer

In search of business value

CONTINUED FROM PAGE 73

of those methods for a decade, but they have worked with relatively small amounts of data: tens or hundreds of rows, according to Herbert Edelstein, president of Two Crows Corp., a Potomac, Md., consultancy that specializes in data mining.

A new crop of software tools promises to change that situation. Front-end graphical user interfaces make data mining accessible to non-Ph.D.s, while low-cost processing power allows data mining to work with larger volumes of data — up to 60G bytes or so, according to Edelstein.

The tools automate the process of finding patterns in data and developing predictive models. Most will work with multiple operating systems and databases, but they use proprietary algorithms or proprietary adaptations of public algorithms.

To use the tools, a carefully considered sample of data first must be extracted — from either a warehouse or production system — cleaned, manipulated and fed to the tools, which will then build predictive models.

Data mining excites people because it promises to leverage multimillion-dollar investments in data warehouses and fuel increases in revenue and profits. The cost of software ranges from "$500 to hundreds of thousands of dollars," Edelstein said.

Adding to the complexity of data mining is the fact that data often must be transformed, even if data was cleaned and transformed as part of a data warehouse undertaking. "You'll spend 60 to 90 percent of your time fiddling with your data," Edelstein said.

TIME-CONSUMING

For instance, in a relational database, there is often a "state" field with 51 values, but many data mining algorithms don't recognize values.

"You have to set them up as 51 separate data elements," explained Paula Thornton, an information architect working on a data mining project at MCI Communications, Inc. in Colorado Springs.

Despite the difficulties, many businesses plan to investigate data mining tools.

LTV Steel Corp. in Cleveland this year plans to evaluate tools from SAS Institute, Inc. in Cary, N.C. (Enterprise Miner, which is scheduled to be released in the fourth quarter), and Unica Solutions, Inc. in Lincoln, Mass. (Pattern Recognition Workbench Pro+, which is available now).

"I want to see how easy they are to use — if I can get the same basic answers with each one and what the level of confidence is," said Robert Scharl, a senior statistician in quality assurance.

LTV can draw on several years of experience in statistical modeling. It has had a 1G-bit warehouse in place on an IBM 3090 mainframe since 1991.

Using statistical packages from SAS Institute, LTV Steel mines and analyzes data about steel production to find the underlying causes of production problems. The program has saved $16.8 million.

In 1994, LTV wanted to find out why the surface of so many of the steel coils produced at one of its plants were discolored. Defect rates were 7% to 8% at the east-side plant in Cleveland. The company compared production data with data from a similar facility on the west side, where defect rates were 2% to 3%. LTV found that the west-side plant rebuilt its furnaces — called stacks and bases — every couple of years, but the east-side plant had never rebuilt its furnaces.

"We predicted that defect rates would be 15% by June [in three months], and then [they were]. It gave credibility to our analysis," Scharl said. By rebuilding furnaces, LTV estimates that the east-side plant saves up to $5 million annually.

Scharl discovered the connection between defect rates and furnace rebuilding by combining his knowledge of steel manufacturing with multiple passes of data through various statistical algorithms, such as regression analysis.

MCI also wants to take advantage of new tools. But none of the 25 products the telecommunications company has evaluated meet its needs, according to Henry Gertzman, senior information technology staff member at MCI.

That's because none of the products will scale up to data samples of 200G bytes, and none will work in both massively parallel processor (MPP) and symmetrical multiprocessing (SMP) environments. The Washington-based company's 3T-byte warehouse runs in a MPP environment with 100 IBM SP2 processors. And, about a dozen data marts run in an SMP environment on a variety of servers from Sun Microsystems, Inc.

SUCCESS STORIES

While MCI struggles to find proper tools, others, such as Brown at ADP, have used available tools successfully in less complex situations. Brown runs DataMind on a stand-alone PC.

To use DataMind, Brown takes data from a homegrown transaction processing system and translates it to a Data Interchange Format file. He then pulls it into a Microsoft Excel spreadsheet. Once in Excel, Brown manipulates some fields, cleans up others and does some calculations.

The difference between ADP's and MCI's applications describes the future of data mining: There will be a plethora of tools, ranging from the most robust, complex and difficult to use to the least robust and simplest to use.□

Wilson is a freelance writer in Glen Ellyn, Ill.

Atre: A dirty business?

CONTINUED FROM PAGE 73

wind up in the same shopping cart at convenience stores on Friday nights. The analysts theorize that Mom sends Dad out for diapers, and he picks up a six-pack while he's at the store. But the analysts aren't positive. Maybe Mom is going out for a six-pack, and the baby starts to cry.

That's where the results of data mining can get tricky. Armed with the market-basket correlation of beer and diapers, what action do we take? The experts say we can stock beer and diapers side by side or place those items at opposite ends of the store, so Dad or Mom will have maximum exposure to the temptation of impulse shopping when traveling between beer and diapers.

SKY'S THE LIMIT

But why stop there? We can stock diapers in the refrigeration unit and put warm beer next to the baby formula. We can put them in the same package. If Dad or Mom pays by credit card, we know where they live, and we can manipulate the information. For starters, we can mail them discount coupons. Then, we can sell their information so that bags full of catalogs and special offers clog their mailbox, and telemarketers ruin their dinner hour. From there, the sky's the limit.

As a technologist, I recognize that data mining offers great value to businesses. It can improve efficiency and increase precision in supplying what customers want. But as a person on the receiving end of data mining's insights, I feel a growing dread as marketers and others sharpen their aim in trying to influence and manipulate me.

Who wants to shop in a store that runs you around like a rat between special offers? Who wants to order some clothes by telephone and, as a result, come to the attention of hundreds of companies that want to sell you something or change your behavior? Who wants to be denied credit, a job or insurance because you fall inadvertently into a pattern found by a computer?

In short, who wants to feel that whatever move you make is captured and engenders the attempts to influence your next move?□

Atre is president of Atre Group, Inc., a consulting firm in Port Chester, N.Y., that specializes in data warehousing and database technology. She can be reached at (914) 939-0045 or by E-mail at shaku@atre.com.

Consumer patterns

CONTINUED FROM PAGE 73

also know which sales gimmicks will work with which consumers.

CUC has used statistical modeling techniques, primarily regression analysis and decision trees, to predict the behavior of its customers for several years.

For example, it has built a model to predict who will renew their shopping club membership for a second year and who won't renew. It also knows which kinds of enticements, such as a $20 coupon, will win a renewal from members who wouldn't renew otherwise.

Because CUC spends $40 for each new member and $10 annually to service the account, the company doesn't make money on the $50 membership fee it charges until the member's second year.

"Making $20 is better than not getting anything," said Jon Beyman, senior vice president and chief information officer.

CUC International, Inc.
Stamford, Conn.

Business: Home-shopping membership clubs, educational and entertainment software

1996 revenue: $2.3 billion

Employees: 15,000

CUC also has helped developers of time-sharing resorts profile the characteristics of people likely to purchase shares. CUC owns a time-sharing exchange service in which members buy time at any of the properties with which CUC works.

"We helped these developers understand who is more likely to buy a time-share, and as a result, it helped us to do more business," Beyman said.

CUC uses a series of statistical software packages from SAS Institute, Inc. Written in C, the software runs on both a PC with Windows and a 9672 mainframe.

MULTIPLE STORAGE

Data to feed the SAS system is stored in a number of databases and platforms, including Oracle Corp.'s Oracle 7.3 running on either Digital Equipment Corp.'s Alpha or VAX boxes under VMS; Oracle 7.3 on Sun Microsystems, Inc.'s SPARC 5000; Hewlett-Packard Co.'s T500 and K200; and Digital's Alpha 2100 under Unix.

But CUC plans to move data mining to Unix. Data most likely would be mined in a separate Oracle 8.0 database on a SPARC 6000. CUC also plans to purchase new-generation mining tools, such as SAS' Enterprise Miner, which will give CUC an easier-to-use interface, more advanced mining techniques and a client/server architecture.□

Wilson is a freelance writer in Glen Ellyn, Ill.

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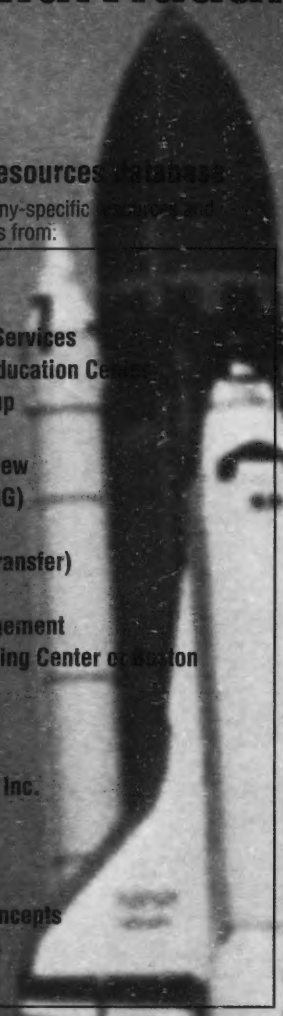

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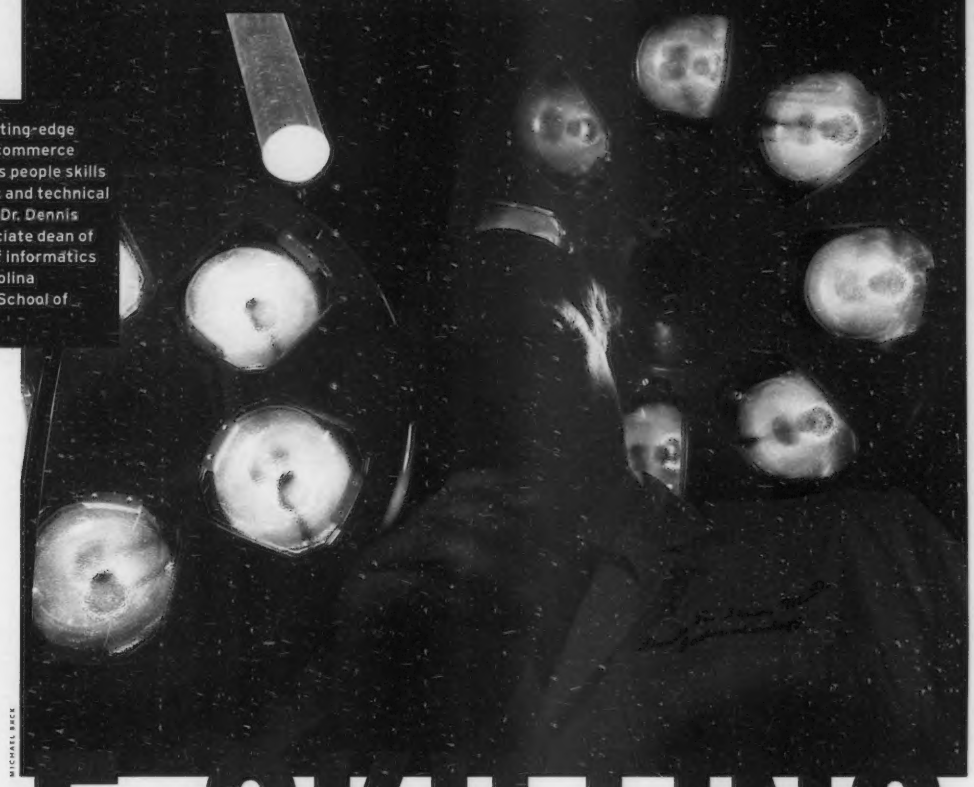


To get a cutting-edge electronic commerce site, it takes people skills and artistic and technical skills, says Dr. Dennis Sinar, associate dean of the office of informatics at East Carolina University School of Medicine

MICHAEL BECK

The E-SKILLING of IS

IS staffs need new skills to enter the world of electronic commerce. Formal training and hands-on experience can open the door to cyberbusiness opportunities. By Robert L. Scheier

YOU CAN'T PLAY in the big league without being in shape.

For many information systems organizations, the big league today is World Wide Web applications. If done right, they're a high-profile, public way to drive revenue growth and market share. For example, one year after Dell Computer Corp. launched its electronic commerce site, the site does nearly $2 million in business each month. And Dell can close these sales while handling fewer customer calls.

To develop such Web applications, IS groups have to beef up their skills. These skills range from writing Java applications to working with artists "storyboarding" a marketing concept. Someone will get the chance to write killer Web applications for your company. Whether it's IS or an outsourcer depends a great extent on how well IS retrains itself.

The Basics

Both business managers and IS need to know the basics to understand what's possible over the Web.

MasterCard University, the training arm of the credit-card association, offers a one-day workshop on "Internet and Emerging Payment Methods," according to Susan Burke, a vice president at MasterCard University in Purchase, N.Y.

The workshop covers Web browsers, servers, "push" technology, search engines and security issues, says Bob Bedard, vice president of financial services at Claremont Technology Group, a systems integrator in Beaverton, Ore., that provides training for MasterCard.

The aim isn't to teach graduates to build Web applications, he says, but to allow them to "have an intelligent conversation and begin building business plans around specific opportunities." At the end of one recent workshop, "the marketing people ... understood more of what the IT people are faced with," Bedard says. The IS staff "felt that was a real breath of fresh air," he says.

E-skilling, page 80

E-SKILLING

CONTINUED FROM PAGE 79

Systems integrator American Management Systems, Inc. (AMS) in Fairfax, Va., encourages developers to experiment with their own Web sites, says Winston Chung, director of AMS's Center for Advanced Technologies. "You'll be amazed at how many people take personal pride" in their sites and spend much more time learning how to improve them than they would in formal training, he says. However, many firms are still reluctant to give developers Web access out of fear that they will waste time or open their companies to security risks, he says.

A wealth of free material, such as demonstration versions of software, is available on the Web. Developers can also get ideas from other Web sites.

Critical Balance

Sometimes, Chung says, developers do indeed spend too much time playing and not enough time concentrating on their jobs. Or they "find their day-to-day activities boring" and leave to use their new skills at another company. And developers left on their own may create Web sites with offbeat tools, making it harder to share information among those sites.

To avoid those excesses, Chung suggests tighter technology and training standards as Web applications become more strategic. Thus, hands-on training and experimentation are fine for personal or departmental sites. But more structured training is provided for corporatewide intranets, with the most rigorous training and technology standards applied to public Web sites or those that require "back-end" skills such as links to transaction systems or databases.

Sears, Roebuck & Co. is also learning by doing. Last September, the Hoffman Estates, Ill.-based retailer formed a central group to deliver short-term Web commerce applications, set long-term standards for Web tools and identify areas where training is needed. Sears is now preparing to bid the training out to training organizations, says senior systems director Stephanie Springs.

After working in this group, "each person goes back [to his business] with the skills to develop these applications," says Joseph Smialowski, senior vice president and chief information officer at Sears.

Sears' first Web commerce site, which will sell Craftsman tools, is expected to go online around the end of the month.

Better Content

When IS builds applications for the "captive audience inside the company," it has some idea of what users need and some opportunity to train them, says Barbara Reilly, research director at Gartner Group, Inc. in Stamford, Conn.

"That single difference — [that] you can't train the customer — " is one of the most critical Web commerce skills IS professionals must learn, says Kenny Hill, online business development manager at Dell. "The data has to be intuitive, and the data has to add value."

The data also must look attractive and even fun, providing "the appeal that only an artistically focused person can bring to it," says Dr. Dennis Sinar, associate dean of the office of informatics at East Carolina University School of Medicine in Greenville, N.C. Sinar is responsible for IS operations at the school and for developing Web applications to link it with other health care providers and promoting it to the public.

"IS people are not artists," Sinar says, and he doesn't train them to be. He instead hires artists with computer experience or who can be trained in technology. The same is true for people skills. "I'd rather hire someone who is a good listener, ... a sympathetic, understanding person, and train them" in IS skills, he says.

The team that is creating Sears' upcoming Web site is "a merger of the marketing and systems group," Smialowski says. Both sides are wrestling with what content to put on the site and the technology needed to get it there. Dell even created a new department, called Dell Online, that brings together technical and business specialists to continually refine Dell's site.

The Back End

Security. Reliability. Response times.

These qualities aren't glamorous, but they're critical if companies want customers to spend money at their sites. Doing business means linking Web applications to existing mainframe databases or transaction systems.

That means IS managers must solve thorny security issues and make sure such transactions don't bog down existing systems, Reilly says. Traditional IS staffers often know the legacy systems but not the often-immature tools needed to link those systems to the Web, she says.

Even developers with C++ and Java skills who used to build systems from scratch now do more systems integration, says Richard Belanger, vice president of technology at Mainspring Communications, Inc., a Cambridge, Mass., start-up that sells Web-based information to its members.

"Six months ago or a year ago, if you knew C, you could bounce around and do all sorts of different C projects," he says. But to write the software "glue" that, say, links a commerce server from Open Market, Inc. in Cambridge, Mass., with a discussion-management tool from Proxicom, Inc. in McLean, Va., a developer needs in-depth knowledge of both products, Belanger says.

Hands-on Training

IS managers agree that the best training for Web commerce is hands-on work, in which students work with other people or Web tools.

Sinar doesn't like CD-ROM training because it can't be easily customized and is too general. And he says videoconferencing leaves students feeling disconnected.

He says he also likes case studies in which a class of business and information technology professionals together build a prototype Web page to sell a new product. For this to work, he says, everyone must be able to interact, which is difficult to do over the Web or in online chat rooms. But he says Web-based training has promise if there's "a body at the other end of the Web site" to give quick feedback.

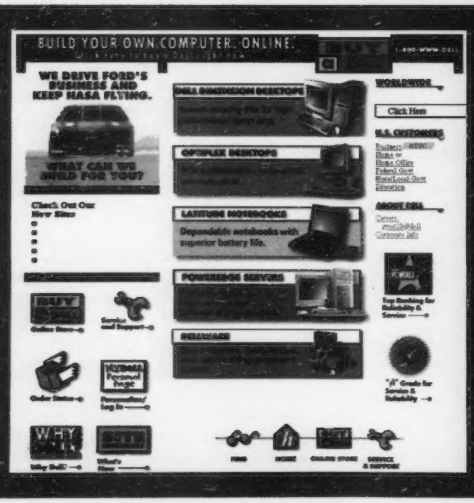
IS also must be aware of "really sharp" users training themselves in easy-to-use graphical Web development tools, says Nathan Fierman, North American vice president of MIS at Adecco, an international personnel services firm based in Lausanne, Switzerland. IS is then stuck with the headache of tying those fancy Web sites to legacy systems, he says.

Reilly says IS managers also need to learn to push back when senior executives demand online systems without thinking through the business rationale or the demands these applications will make on back-end systems. If IS allows those projects to go ahead without proper funding or clear goals, they can turn into costly failures — the kind IS can least afford, Reilly says. □

Scheier is Computerworld*'s senior editor, management.*

COMPUTERWORLD

Kenny Hill, the online business development manager at Dell, this week talks about his company's electronic commerce efforts. (*www.computerworld.com*)



Dell Computer's electronic commerce site (www.dell.com) is continually refined by a department that brings together technical and business specialists. In The Dell Store, right, online customers can select and order desktop products, servers and notebooks from a menu.

Special

Overview by IDC

Overcoming the Hurdles

in Deploying Financial Applications

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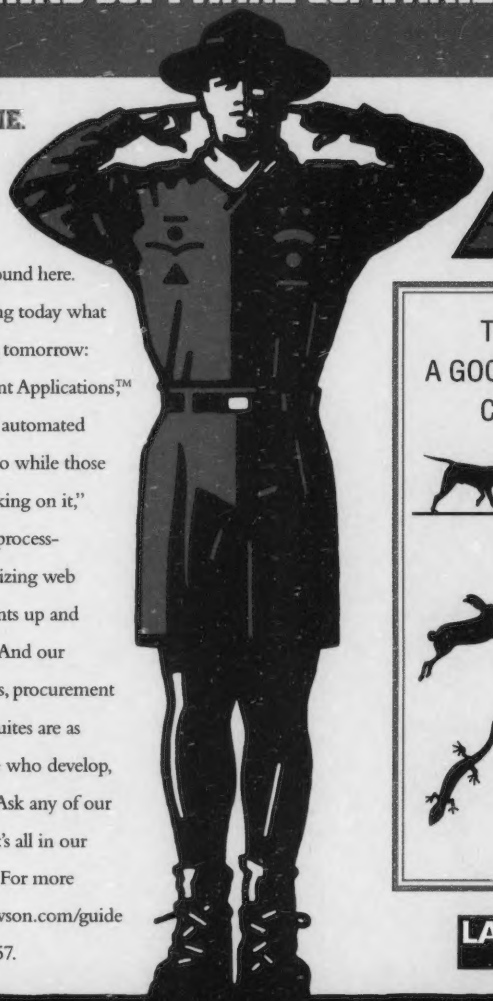

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For Financial Managers, It's a New Drill

BY JUDITH HODGES
Research Manager, Applications and Information Access, International Data Corp.

ONCE, financial managers were viewed strictly as the people who counted the money. But today's financial managers have assumed a far more strategic role. They do more than simply report on the balance sheet; they closely analyze each finite business process and function in their organization to understand how to best attain profitability.

Executive boards seek from their top financial managers answers to questions such as: Which of our products are most successful? Which of our customers are most profitable? From which regions do we derive the most sales? But extracting the critical data they need from their accounting systems can be a hurdle for many business analysts.

In IDC surveys, accounting's business managers list timing and availability of financial information as the area of accounting systems needing improvement most. Other reasons for dissatisfaction with older systems include high maintenance costs, poor user interfaces, and insufficient integration between accounting modules and other applications and tools.

For help, financial managers are turning to client/server financial systems, which provide graphical, multidimensional data analysis tools, and new accounting tools that give users functions they lacked with mainframe-based systems, such as drill-down capability and the ability to interactively analyze financial data.

End-user information access and client/server architectures will drive market growth through the end of the decade. In 1996, the worldwide client/server accounting software market grew 40.3% to $2.4 billion. Sales for client/server financial products will drive growth in the accounting software arena through year 2000.

Budget management software that links companies with multiple environments will occupy a bigger portion of their financial management software portfolios. Products that support enterprises with general ledgers from multiple vendors, take data in from non-financial sources such as sales systems, and help manage the workflow of budget information dissemination, budget creation and documentation, and the roll-up of the budget are in strong demand.

Corporate budget managers need to achieve consistency of process across a mix of heterogeneous systems. The software they select must support multiple views to facilitate budget analysis from several perspectives. Purpose-built budget management software will gradually supplant the more common spreadsheet in these applications.

Large accounting departments are bringing their information down to the LAN level so users can better access it. Another technology giving financial managers better access to data is the data warehouse. A company may want to identify sales patterns across its customer base by understanding how various dimensions, such as geographic region, length of sales cycle, channel of distribution, and average size of contract, relate to one another. Operational reports from traditional accounting systems do not provide this information.

The emergence of the Internet, the Web and the intranet will also have a significant impact on the finance function. Web-based extranets and intranets offer many advantages, including data access. This coincides well with the typical accounting solution, supporting cross-departmental coordination; access to data by parties internal (e.g., line managers reviewing corporate data) and external (e.g., suppliers checking payment status) to a firm. But Web

continued on p. 7

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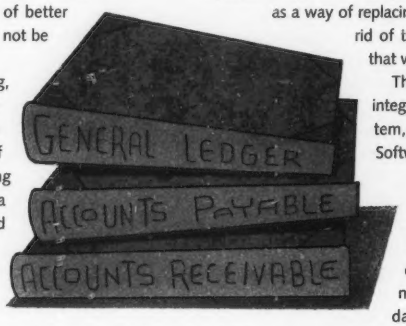
Access to Financials Broadens

BY COLLEEN FRYE

FINANCIAL data becomes business information when it's accessible, timely and in a format that maps to business needs. This transformation from data to information is the goal of companies reengineering their financial systems.

Today, more organizations are seeing the value of opening up access to their financials (to corporate users), as well as integrating that data with other core business systems. "The CFO becomes a hero if he's able to put good solid business information into the hands of users," says James Perakis, chairman and CEO, Hyperion Software Corp., Stamford, Conn.

What initially drives many reengineering projects is a finance department's need to rid itself of what no longer works or no longer works well. It can be outdated technology; legacy applications that no longer fit the bill; manual processes; a workflow bogged down with paper. Or it can be what one CIO calls the "underground spreadsheet economy" — a phenomenon that consists of users downloading or rekeying data from a general ledger into a spreadsheet for analysis for lack of better tools, working with data that may not be current or consistent.



As a first step to reengineering, Richard Lawson, chairman of Lawson Software, Minneapolis, recommends that companies "get rid of workflows based on data processing needs." That's what Wilsons, a retailer of leather outerwear and accessories based in Brooklyn Park, Minn., did. In 1993, the company decided that its mainframe-based accounting system no longer offered timeliness in reporting, and did not allow its users to see the big picture. "In the mainframe world, accounting has historically been front runners in utilizing spreadsheets for analysis," says CIO David Tidmarsh. "The problem is, you begin managing your business on a spreadsheet, with no common sense of what the data is."

Wilsons decided to migrate all applications to a client/server architecture. For the finance department, Wilsons chose the Insight suite from Lawson Software. Redundant and unconnected spreadsheets are now a thing of the past. The software's ability for drill-down "allows everyone to have the same data, and they access it in the same way, though it might look different for every user," says Tidmarsh.

Sometimes it's the business process that needs to be overhauled. F. Schumacher & Co., a company based in Manhattan that makes wallpaper and fabrics, had an 11-year-old accounts payable system running on a minicomputer that performed poorly in a benchmarking study. At the same time, the firm looked at how it managed its supply chain, and identified purchasing, which was decentralized, as another area needing improvement.

CFO Joe Meth formed a supply chain management task force to get to the heart of reengineering. "I realized software was the enabler. It wouldn't change anything unless we got the culture to change." That involved changing the relationship between the finance and IT departments. Meth wanted software that was controlled by finance. "We had to sell our IT people. They viewed the purchase of the software merely as a way of replacing legacy systems and getting rid of the iron. But we had a vision that was broader than that."

That vision includes eventually integrating the new AP and PO system, purchased from Computron Software, with an upcoming warehouse management system as well as with the company's current order entry system. This, he says, will eliminate the time delay that now exists between shipping data and when a customer is billed. "A customer picks up extra terms just by our system's inadequacy," Meth says.

At College of Agriculture and Life Sciences, a State University of New York college at Cornell University, the problem was too much paper. Production reports coming monthly from the controller's office were shelved in notebooks. John Finamore, CFO at the college, brought in Hyperion Software's Enterprise consolidation product to improve managerial financial reporting, eliminate paper reports and to get exceptionary reporting to troubleshoot accounts going into deficit.

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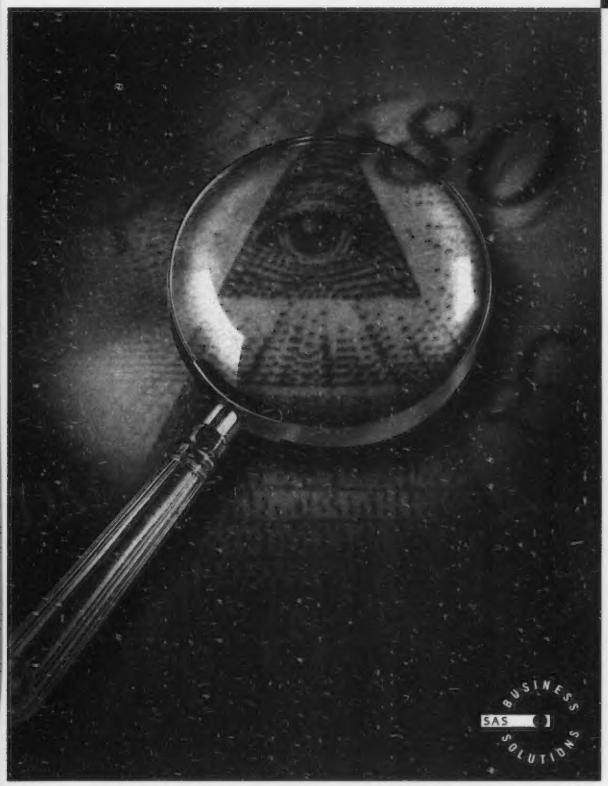

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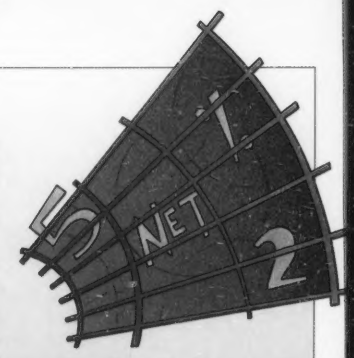
ON TIME AND ONLINE



The World Wide Web is a promising platform for financial applications, offering the accessibility and ease of use that will propel finance into a true enterprise-wide system. Companies are looking first to open access to employees via intranets, but the long-term vision is an extranet that allows customers and trading partners access for electronic commerce and paperless processing of business documents.

Providing financial information to non-financial users via a standard browser will give them better information for decision-making, says John Finamore, CFO at the College of Agriculture and Life Sciences at Cornell University. The college is about to deploy Spider-Man Web Delivery, a server-based product from Hyperion Software. "The goal is to allow all financial and other information to reach potential users," he says. "Anyone who wants access will have it on time, online, and available to help with the decision support process."

The software will also solve the college's issue of dual platforms. Half of its users are on Macs, the other half on PCs.

The Web's usability makes it a perfect vehicle for non-financial users, says Richard Lawson, chairman of Lawson Software. "Client/server had the implicit promise of allowing software to be deployed to a mass audience, such as all employees. That promise was never fulfilled. Web technology allows us to deploy software to a wider audience which cannot possibly be trained on the software."

ZERO TRAINING IS IDEAL

According to Lawson, financial applications that run on the Web should be self-evident, which means zero training. That puts the burden on the software developer to design products that are more in line with the way users think and work. If the application is compelling and easy to use, they will use it, he says.

The company is shipping what it calls self-evident applications in the requisitions module of its Insight Procurement Suite of products. Companies that deploy this module can give their employees an easy way to request materials, supplies and capital items. The costs associated with these Web-enabled purchases feed into the Lawson accounting system, making the new Internet applications highly complementary with the traditional application.

Some companies perceive a downside to Web access. "A lot of people at levels above me get scared with having financials on the intranet," says Clare Hunter, financial planning manager at Coopers & Lybrand in Jersey City, N.J. "There are security issues, and they may perceive it as a loss of distribution control."

The trick, says James Perakis, chairman and CEO of Hyperion Software, is to get information with the appropriate security and consistency built into it. That means defining roles and limiting access to data that is appropriate to a particular user.

The Holt Co., in Waltham, Mass., wants all its users to access financial data via the Web. While CFO David Lord says the firm will never do away with client-side software for power users of its accounting system, the Web is ideal for "portable people who don't want to come back from the road to do data processing." Web access also fits with the company's goal of improving quality of life for its employees. That in itself seems pretty compelling. – CF

So far, the college has reduced its paper use by 6,000 sheets per month and has eliminated the rekeying of financial data into spreadsheets or "shadow systems" via Hyperion's Retrieve product. "We made a decision when we purchased the system that we not use it as a means of reporting on transactions," says Finamore. "We wanted it to be analytical in nature. One of our reengineering goals was to get department managers away from looking at individual transactions and to do a bigger picture analysis."

Once users get a look at the bigger picture, they want to do more with the information. And by reengineering their financials, companies find they can springboard into other technologies such as electronic commerce and data warehousing.

"One of our reengineering goals was to get department managers away from looking at individual transactions and to do a bigger picture analysis." *— CFO John Finamore*

The Holt Co., a Waltham, Mass., firm that designs and sets up multimedia rooms, wanted to leverage the Internet as a way to grow, to compete with larger suppliers, and to drive down the cost of transactions. Having already applied many band-aids to its business processes, the company wanted to start from scratch, says CFO David Lord.

So the company came up with a plan that got rid of unnecessary manual processes, and called for a technology infrastructure that would allow for opening an Internet store. Making this possible, says Lord, is the firm's new financial system from Great Plains Software, Fargo, N.D., which will be at the heart of the electronic commerce workflow. The company is a beta user for Great Plains' Dynamics.View, Dynamics.Order and Dynamics.Requisitions products, which are tightly integrated with the Dynamics C/S+ financials suite.

In the e-commerce venture, everything will be tied into the accounting system. When a customer places an order at the storefront, it will be processed through the financial system. Once suppliers are tied in, vendors will be paid electronically. Lord eventually wants to tie in the financial system to a data warehouse, a step many companies are taking to organize data to model the way the business operates.

Some companies use an online analytical processing (OLAP) tool in conjunction with a warehouse. Rocco Inc., a food processing firm in Harrisburg, Pa., first built a warehouse for customer and product information that interfaces with general ledger and accounts payable applications from Lawson Software. It then brought in an OLAP server running the Essbase multidimensional database from Arbor Software. Currently, 60 users — 20 in the finance department — use the OLAP server and data warehouse for analysis. "OLAP saves us $5,000 a day," says CIO George Davis, "and it goes all the way back to [implementing] the Lawson financials."

But organizations like Chartwell Re Corp. that don't need or can't afford a data warehouse can address problems through the core [financial] product. "Chartwell can't afford to spend a zillion dollars on data warehousing or the time it takes to build it," says Joe Puglisi, vice president and CIO at the Stamford, Conn., insurance company. "We choose to view our GL as a data warehouse." Chartwell's accounting department now uses the SQL Financials suite from SQL Financials Inc. in Atlanta.

Adds Puglisi, "A data warehouse is a vehicle for delivering the right data to the right person at the right time to facilitate decision making. Our GL represents summarized information that is not at the transaction level. We have procedures that summarize and bring across to the GL all the information we need to run our business."

No matter what analysis tools a company chooses, a reengineered financial system will provide a better resource for making business decisions. The CFO who oversees this reengineer may be the company "hero."

Colleen Frye is a freelance writer who specializes in software. She is based in Bridgewater, Mass.

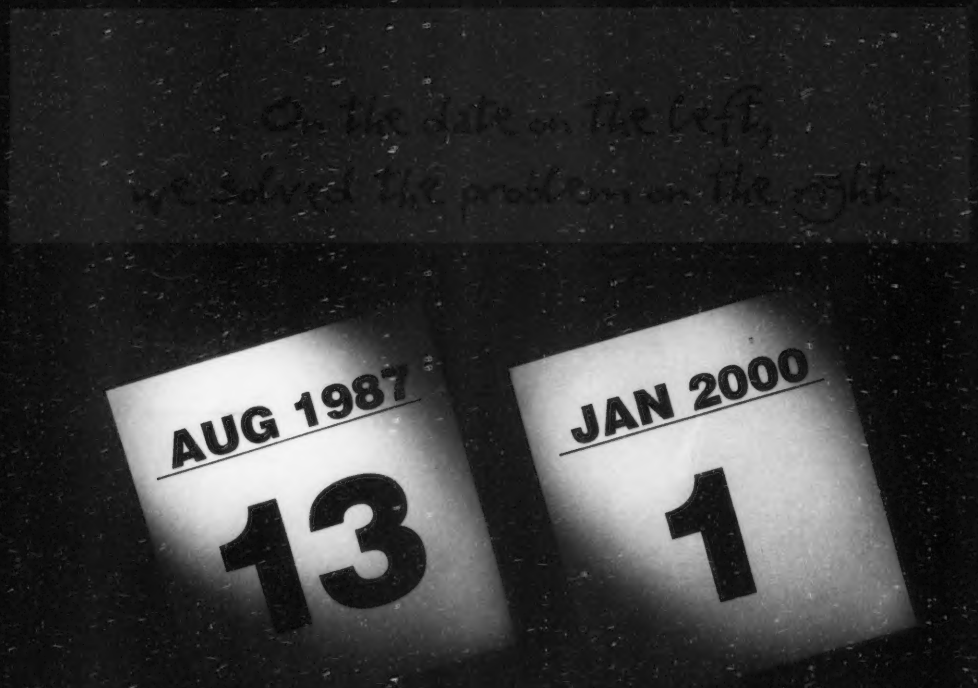
NEW DRILL FOR FINANCIAL MANAGERS continued from p. 3

technology, which often requires changing or reorganizing how work is conducted, will further change the accounting function.

Ordering over the Internet can help customers to help themselves to what they need. If a vendor has not been paid, via the Internet it can have direct access to the accounts payable records of the buyer firm to find out when payment will be made. Sales reps can make inquiries into their company's accounting systems from the road to determine whether a customer has extensive debt that may preclude selling to them in the future.

As more companies find success from electronic commerce, accounting's role as a key contributor in it will only expand.

Judith Hodges is Research Manager, Applications and Information Access (AIA) at International Data Corp. In this role she has responsibility for cross-industry applications, including financials, HR, distribution, sales and marketing and customer service/support. She can be contacted at jhodges@idcresearch.com.



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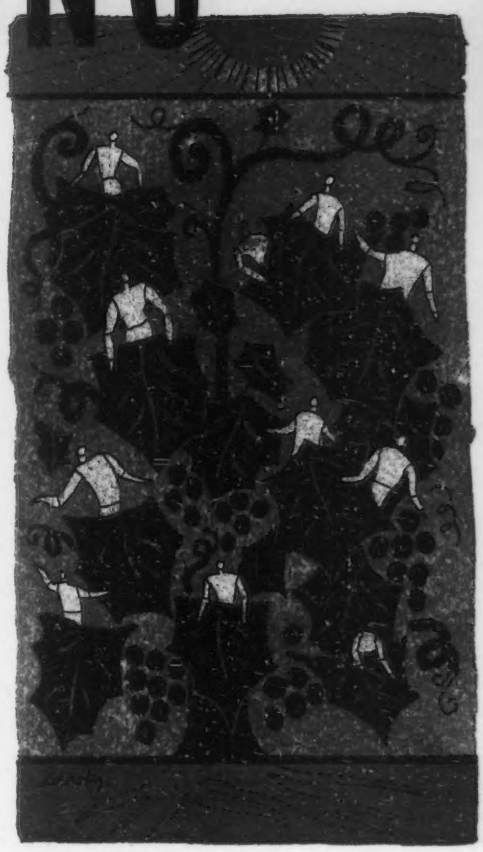
HARVESTING Project Leaders

If you want well-run IS projects, you have to cultivate project managers like a garden, with plenty of training, commitment and opportunities to grow By Rick Saia



PHILIPPE LARDY

Projects make up much of the work done by information systems organizations. How can IS executives best nurture managers to guide those projects?

The answer is simple: executive commitment and training that allow a company to continually grow new project managers and help them flower in that role.

Executives "don't have a clue about how to grow project managers," says Gopal Kapur, president of the Center for Project Management (CPM), a consultancy in San Ramon, Calif. "Project managers do not grow on trees. You have to understand the process of gardening before you can grow something.

"We're pulling some people into some very tough projects," he says. "If the leadership is poor, that team is not going to go many places."

Kapur advocates that corporations develop internal programs to develop project managers.

When looking for project manager material, Jeff Koroknay says he looks for a decisive problem-solver who can "gather the appropriate information and make a decision"

The Federal Reserve Bank of St. Louis has had such a program for more than a year, and it's helped the bank grow 45 new project managers. It combines hands-on work in medium- to low-risk projects with classroom training. A new project manager is guided by a veteran leader, who acts as a coach or mentor. Gary Arnold, manager of learning and development services, calls that a very critical piece of the program. The coach/mentor can offer advice based on experience.

Typically, Arnold says, project manager wannabes are sent to the classroom for a few days before they apply some skills. But the Federal Reserve Bank found that the opposite works better and starts them off in the trenches, he says.

In the classroom, new information technology project managers are joined by their business unit partners. "That's really one of the things that spelled success for us," Arnold says.

In June, San Francisco-based Bank of America Corp., which actually has a senior vice president of project management, launched a program that starts in a classroom setting. Rookie project managers spend three days away from the office in a program taught by professional project managers, according to Christopher Higgins, who holds the senior vice president position.

The program teaches how to manage meetings, build work-breakdown structures, use project planning tools and effectively identify and resolve issues. Bank of America trains project managers to be team members responsible for specific milestone tasks. The program exposes them to project tools, methodologies and techniques, Higgins says. After that, they move to small projects they can lead, then bigger projects that become increasingly challenging.

Higgins, who has eight years of experience in supporting IS-related projects in the banking industry, says successful project managers must possess or develop strong qualities in leadership, have the ability to influence, know how to understand the business and apply technology, and have what some experts say is the most important — communication skills.

Jeff Koroknay stressed those qualities when he helped develop a project management curriculum in the IS organization at Honeywell, Inc. in Minneapolis before leaving the control technology manufacturer last year. (He now works at a technology vendor.) First, to find project manager potential, he looks for someone with two to four years of IT experience, a decisive problem-solver who can "gather the appropriate information and make a decision." The prospect also needs some marketing savvy, must communicate well and be goal- and results-oriented.

After a year and a half to two years of classroom training, which includes the basics, and leading progressively larger projects, the new project manager comes to a key fork in the career road: He is evaluated by superiors, peers and team members, and that feedback helps decide whether the person can continue on the project management track. If the answer is yes, Honeywell provides continuing education and leadership of higher-level projects.

A key to finding and developing project managers centers around working with people.

Jim Johnson, chairman of The Standish Group International, Inc., an IS management consultancy in Dennis, Mass., says a lack of decent interpersonal communications skills is "the No. 1 problem" in project management.

"The first course you want to send your technical manager to is a Dale Carnegie course," Johnson says. He adds that if a company doesn't invest in people skills for project managers, "you can probably run amok."

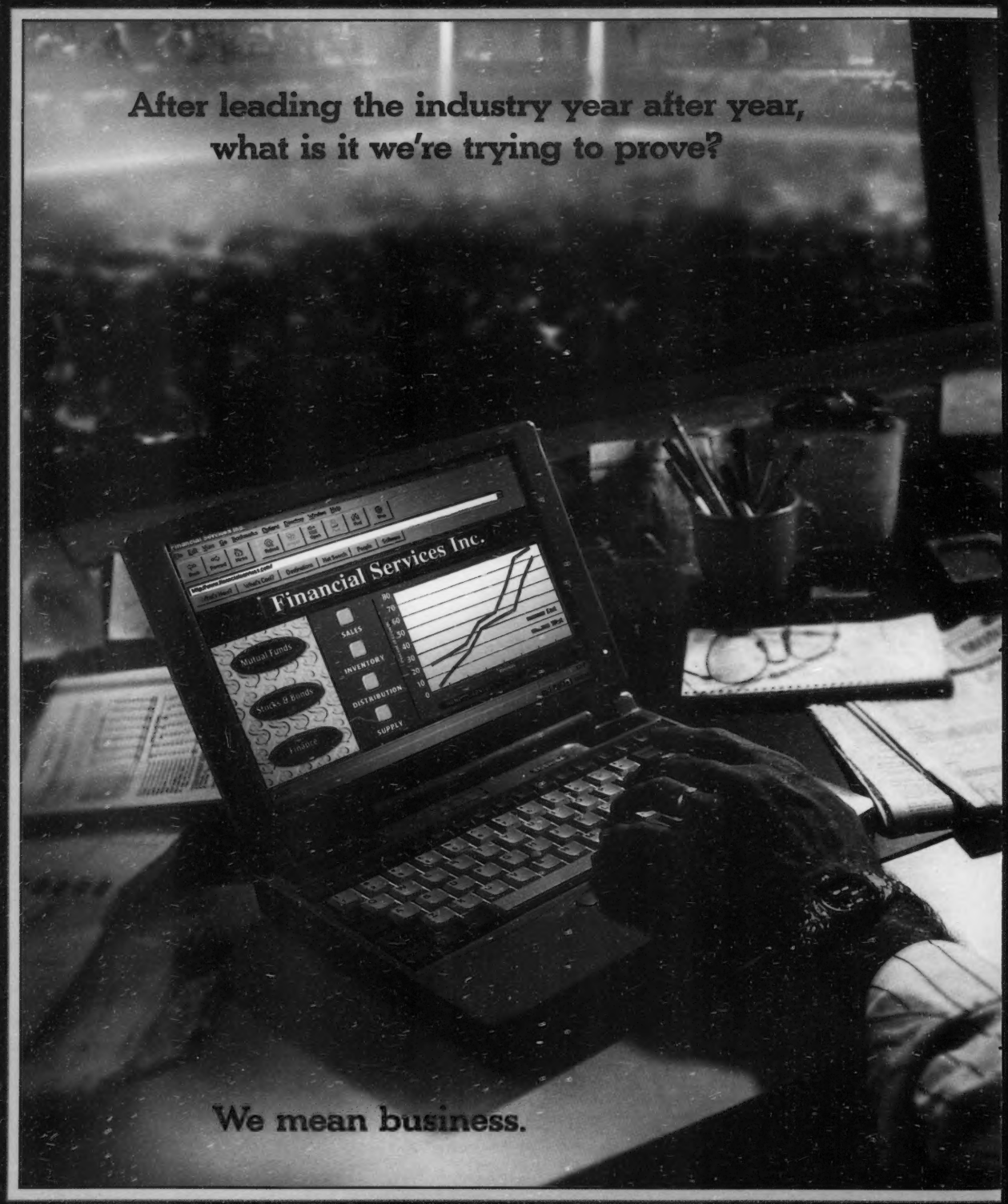
But Kapur and Koroknay agree that for training programs to work, a company needs executive commitment. Training programs go nowhere unless you get that "buy-in," Kapur says. He says he won't even work with a company unless top executives "walk the walk and talk the talk" in building a project management culture.

Upper management, Koroknay says, must recognize project management as a "true career path" in IS, rather than a deviation from the traditional programmer-to-analyst progression.

Executives also must learn the principles and practices of project management, Kapur says. Most project management education is done for project managers and team members, he says, and they need to know they'll have support. Kapur cites a key finding in a 1996 CPM survey of 38 IT executives in the U.S.: 93% said they believed project sponsors did *not* clearly understand their responsibilities and time commitments.

Kapur says that in a dysfunctional project organization, most project managers see themselves as "scum of the earth." But with the proper training and some expert gardening by upper management, they can rise above the soil, grow and flourish. □

Saia is Computerworld's associate editor, Managing.



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BUSINESS GURUS CAN'T HIDE BLIND SPOT

PETER G. W. KEEN

Picture a young executive talking on the phone: "Intellectual capital, re-engineering, learning organizations? Done those. Sorry, I didn't quite follow you. IS? What's that?"

A cartoon from the *New Yorker*? I wish it were. Unfortunately, it's a picture of corporate reality.

When a new management bandwagon barrels down the road, racing along with slogan-bearing banners streaming in the wind, it's almost certain that it will affect IS in terms of workloads, business executives' expectations, investment priorities and relationships. Any major organizational or business innovation networking must depend on information technology, especially on enterprise networking.

Yet when you listen to the gurus with concepts, the consultants with methodologies and the managers with best-sellers in their briefcases, you realize that their ignorance of IS is staggering. So many of them talk about IS themes but have little understanding of the realities of design, implementation and operation of enterprise platforms. They talk as if technology is self-integrating and self-implementing. It's part of the "it's easy" view of IT, where IS too easily is seen as the voice of reaction from technology Neanderthals. (Too many vendors don't help here; they should be required to add the equivalent of the notices on cigarette packs to their products: "Warning: Implementing this takes time and planning and can be dangerous to your cash flow.")

Look at the leading books on, say, the learning organization, virtual organizations, supply chain management, knowledge management and re-engineering. Very few address the issues IS deals with each day.

Now, here comes "intellectual capital" as the next "great idea." There are several books on the subject, which is also part of the recent knowledge management mini-bandwagon. They talk a lot about information and the information economy. But as far as IS issues go, they don't know what they don't know. They're familiar with the obvious features of the technology but not the nature of enterprise technology, the legacy systems traps, integration, data modeling — all the stuff that gets in between grand concept and business practice.

CAN'T DUCK THE BOOKS

Despite these authors' ignorance, IS can't brush the writers off. Books such as Tom Stewart's *Intellectual Capital* and Leif Edvinsson and Michael Malone's book of the same title contribute to defining a new business mainstream, just as re-engineering, total quality management and the learning organization did. Some of their messages may turn out to be fads of the month, not truths of the decade, but they will still influence the business debate. Intellectual capital and IT obviously are highly interlinked.

What should we in IS do? Do we just sit on the sidelines of mainstream discussions about intellectual capital? Or do we jump in with professional expertise so that the IS contribution is central to the debate?

For too many years, IS was off in its own organizational and intellectual world. For a while, IS consulting firms and academics offered methodologies and two-by-two diagrams that had a business flavor but were idiosyncratic and didn't influence the business.

A CLEAR MESSAGE

But consider what IS people informally know about topics directly relevant to, for example, the leveraging of intellectual capital: information warehousing, groupware, information reuse, copyright and protection of intellectual property, expert systems, business multimedia and process mapping, to name just a few. How much of that is in the books that already have a big impact on managers? Hardly anything. So it makes sense for IS to make its own message clear in advance of the arrival of the latest business best-seller.

But can we get our ideas across without reinforcing the sense that we are indeed outsiders? If we want to have such influence, IS people need to read the pop business books as they start getting attention and, in effect, translate them into IS terms and messages. We must do this because we have to listen and speak the language of the mainstream. We have to keep in touch with the dialogue of business innovation. We need to read more broadly than just the IT trade press.

IS pays a huge price for being on the outside. If we want to be listened to on the inside, we have to have something to say and say it in mainstream language and concepts. Even if it means sounding a bit like a business best-seller.

P.S. If you've read this article and still don't know what intellectual capital is, well, maybe that's the problem. □

Keen can be contacted at www.peterkeen.com. His new book, The Process Edge: Creating Value Where it Counts, *was published last month by Harvard Business School Press.*

f.y.i.

IS leaders urged: Educate line managers

Information systems leaders also have to be teachers, the head of MIT's IS research center says.

Now that companies see themselves as being in the knowledge business rather than just in products, educating business managers about IS is emerging as "the most significant issue" for IS, says John F. Rockart, director of MIT's Center for Information Systems Research (*web.mit.edu/cisr/www*), at the center's annual conference for IS executives last month in Cambridge, Mass.

"I know no line manager would go to the [chief financial officer] and say, 'I don't understand money; you take care of it.' I don't know a line manager who would go to human resources and say, 'Manage my people for me.' But I still see line managers say, 'I don't understand technology; can you take care of it for me?'" Rockart says.

Why has teaching line managers become a critical issue? Although technical skills, business knowledge and good people remain crucial for IS success, so, too, are strong relationships with business managers and "federal" governance structures. This is necessary for sharing authority over information technology resources between IS and business functions and between central and decentralized groups, much as the federal government and states share legal authority.

Rockart says line managers should see IT as a key resource, include IS in strategy and planning and take responsibility for IS implementation. "The effective use of IT is a line responsibility," he says.

The benefits of educating line managers include a much better understanding of IT infrastructure, acceptance of the need to invest in infrastructure, more effective prioritization of IT projects and resources, and prevention of destructive spasms of downsizing.

"I keep seeing companies [that] let IT manage itself with a thin steering committee to prioritize projects," he says. "They wake up one day and say, 'Costs are out of control. We have to cut back.' Companies with effective governance structures don't have to go through this 'night of the long knives' when they slash significantly."

The conference drew 125 senior IS managers from around the world. Speakers included leading academicians from MIT, the London School of Business and Boston University.

— Allan E. Alter

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23. Dir./Mgr. Sys. Development, System Architecture
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(a) Solaris (e) Mac OS
(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep
App. Development Products ❒ Yes ❒ No
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OTHER PROFESSIONAL MANAGEMENT
80. Information Centers/Libraries, Educators, Journalists, Students
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(a) Solaris (e) Mac OS
(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep
App. Development Products ❒ Yes ❒ No
Networking Products ❒ Yes ❒ No
Intranet Products ❒ Yes ❒ No

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PRODUCT REVIEW:
New features and technologies speed deployment of multitiered, scalable client/server applications and Web-enabled applications

DELPHI 3 Pushes the Productivity Envelope

BY HOWARD MILLMAN

REVIEW ▶
Delphi 3, Client/Server Suite

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Scotts Valley, Calif.
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Platforms: Windows 95, Windows NT

PROS
Fast compilation, native-language SQL drivers and an intuitive rapid application and integrated development environment accelerates application building.

CONS
The application's multifaceted, robust and encyclopedic feature set translates into a steep learning curve.

IN ITS RECENTLY RELEASED Delphi 3, Borland International, Inc. increases the productivity of in-house and independent application developers by automating common tasks, improving syntax checking, adding coding aids and enhancing World Wide Web connectivity.

Borland retained the best features of Delphi 2, such as its intuitive rapid application and integrated development environment, and bolstered its thin spots. Packed with 50 new features and wizards, including improved data mining tools, Delphi 3 is well-suited to build, debug and deploy high-performance line-of-business applications and reduce an application's long-term cost of ownership through object reuse.

Delphi 3, page 89

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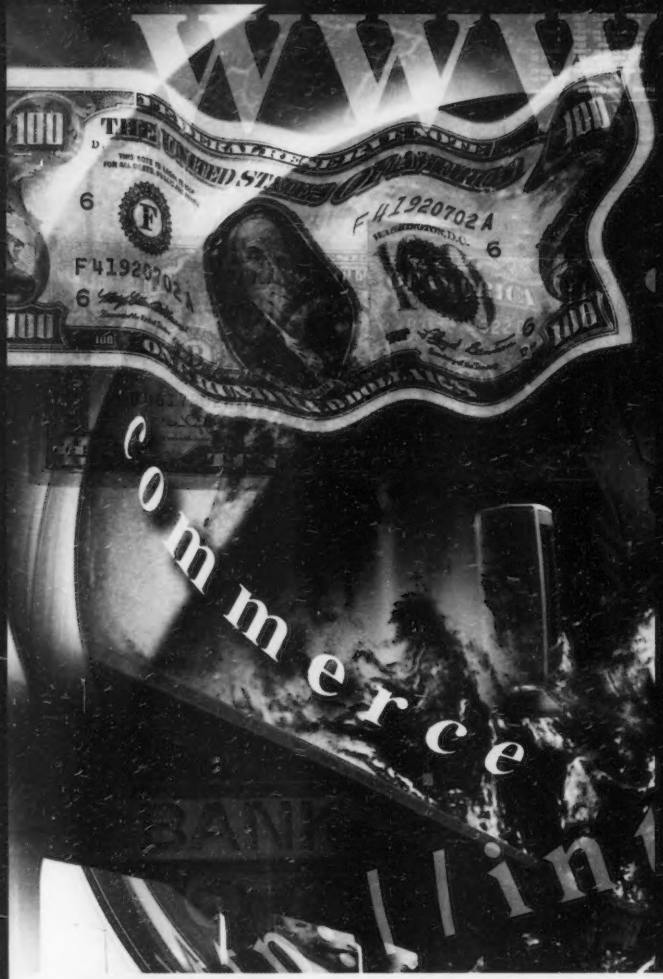

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DELPHI 3 Pushes the Productivity Envelope

CONTINUED FROM PAGE 87

Other new time- and sanity-saving technologies include several client/server development tools; shortcuts to Web-enable existing client/server applications; a fast ActiveX control builder; high-speed, native SQL Link drivers; and intelligent middleware. Its support of ActiveX and Microsoft Corp. and Netscape Communications Corp. browsers, along with Microsoft's standardized application delivery mechanism, InstallShield, further reduces deployment costs. Delphi 3 ships with Microsoft's Internet Explorer.

I tested the $1,999 Client/Server Suite, which targets developers of enterprise-class client/server and Web-based applications. With the $799 Professional edition, Borland targets developers of stand-alone or networked Windows applications. The $99 Standard edition should meet the needs of entry-level developers.

I compared Delphi 3 with Microsoft's Visual Basic 5.0. Although the two share many similarities, Delphi 3 contains several new or substantially improved technologies. Examples include Client DataSets and Brokers.

Previously available only for use in stand-alone or two-tiered database applications, Delphi 3's improved client/server technologies can generate high-performance, multitiered applications with around-the-clock rollover for data preservation and business continuity.

That thin-client strategy lets developers allocate application code among a client, database, application and Web server. Borland's comprehensive collection of wizards, accelerated coding and debugging technologies and support of Component Object Model (COM) and Distributed Component Object Model (DCOM) — plus, ironically, superior support for creating ActiveX controls — gives it an edge over Visual Basic 5.

Delphi 3's support for ActiveX components and DCOM/COM objects permits their reuse within other languages and environments such as C++, Java, Visual Basic, PowerBuilder and IntraBuilder. Developers can debug Dynamic Link Libraries and ActiveX controls created and stored anywhere within Delphi 3.

CROSS-PLATFORM CONNECTIVITY

Native SQL Link drivers, combined with connectivity-optimizing middleware called Entera, let developers access and integrate existing pools of legacy data to enhance the quality of business decisions. Entera eases connecting to minicomputers and mainframes that run multiple flavors of Unix, Windows NT and other proprietary operating systems. Borland claims Entera will scale to serve thousands of simultaneous users.

Finally, Delphi 3's comprehensive connectivity includes a new DataSet architecture that lets developers create and deploy database server objects that support popular Open Database Connectivity-compliant databases, including Oracle Corp. databases, IBM's DB2, Sybase, Inc. databases and Microsoft's SQL Server.

In addition to tools designed to move the data faster, Delphi 3 includes a variety of modules to reduce coding errors and increase productivity. For example, the integrated SQL Monitor tests, debugs and tunes SQL queries. It lets developers eavesdrop on the exchange of SQL queries and responses between a client and an SQL server.

SQL Explorer (similar to Visual Basic's DataView) eases viewing, establishing and modifying tables, indexes, aliases, stored procedures, triggers and business rules. It can shave minutes and keystrokes from arduous projects.

Developers also can use SQL Explorer to issue SQL statements directly to multiple servers and databases, which further increases productivity.

A cost- and time-saving compiler technology, Packages, encapsulates existing and new applications to reduce executable file sizes and load times. The resulting thin-client applications are less complex, which contributes to fast, easy and less-expensive deployment of native-code executable files.

WebBridge insulates developers from dealing with many of the details of building a Web-aware application. It handles communication between a client and a Web server so developers can concentrate on the site's content or services provided by the Web server application.

Completing the connectivity options, Delphi's ActiveForms enable the building of Web-enabled thin-client applications — including database links — using the same syntax and integrated development environment tools used to build client/server applications.

BROKERING SPEED AND SAFETY

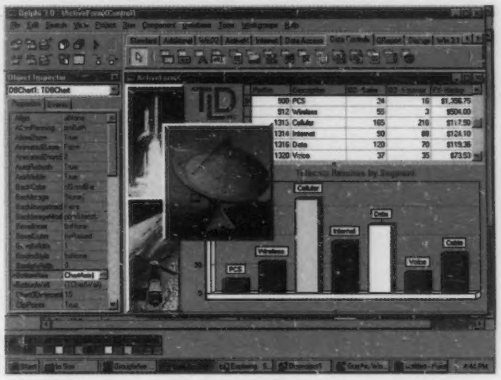
Business ObjectBroker and Remote DataBroker, two integrated components of an optional, high-reliability, fault-tolerant tool set called the MIDAS Suite, allow each client to communicate — through the Borland Database Engine — with a back-end database.

Delphi 3's Brokers reduce maintenance costs through the use of code-sharing, object reuse, centralized administration and allocation as well as management of database connections. The tool reduces installation costs because users need to install and configure a database engine only once.

Finally, Brokers ease building thin clients because they transmit only changes made to data, not entire data sets, which reduces bandwidth demands and transmission times. The Client/Server Suite includes a development-only Broker license; the full deployment version of MIDAS costs $5,000 per server.

WIZARDS GALORE

I tried some of the new wizards to see how well they simplify application building. They do well. The One-Step ActiveX Wizard converts third-party controls into ActiveX controls, complete with type libraries and property pages. Developers can create ActiveX controls from the ground up or turn existing Delphi or C++ Builder VCL components into ActiveX components.



Delphi 3's superior support for creating ActiveX controls helps give it an edge over Visual Basic 5.0

The wizard and features I tried all worked consistently and quickly, even though I had several other large programs open at the time.

Code Insight, a collection of wizards and shortcuts, accelerates coding. For example, one wizard interactively corrects and completes syntax and pops up a list of all the available elements for an object. Another wizard lists properties, methods and event names for a given component. Still another displays parameters for procedures, functions, methods and the values linked to a Windows ToolTip. So developers don't have to tax their memory or take time to look up help or navigate through an editor.

Business Insight creates multidimensional analysis of data including charts and crosstabs. A superset of Delphi's report generator, QuickReports 2.0, it offers more sophisticated data analysis and output.

Although Business Insight requires a fair amount of interaction and forethought, it is still easy to work with. I easily added, deleted and exchanged links in the data matrix.

A point-and-click, graphical Visual Query Builder aids in selecting columns and rows for inclusion.

Most important, I easily was able to drill down into ever-finer details in my data store to generate reports and charts, a feature unique to the Client/Server Suite version of Delphi 3. □

Millman operates Data Systems Services Group, an independent networking and problem-solving consultancy. He can be reached at hmillman@mcimail.com.

SOME RELATED HOWARD MILLMAN REVIEWS OF APPLICATION DEVELOPMENT TOOLS:

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Borland's C++ Builder: Borland offers solid, powerful C++ Builder *(Jan. 20, 1997)*.

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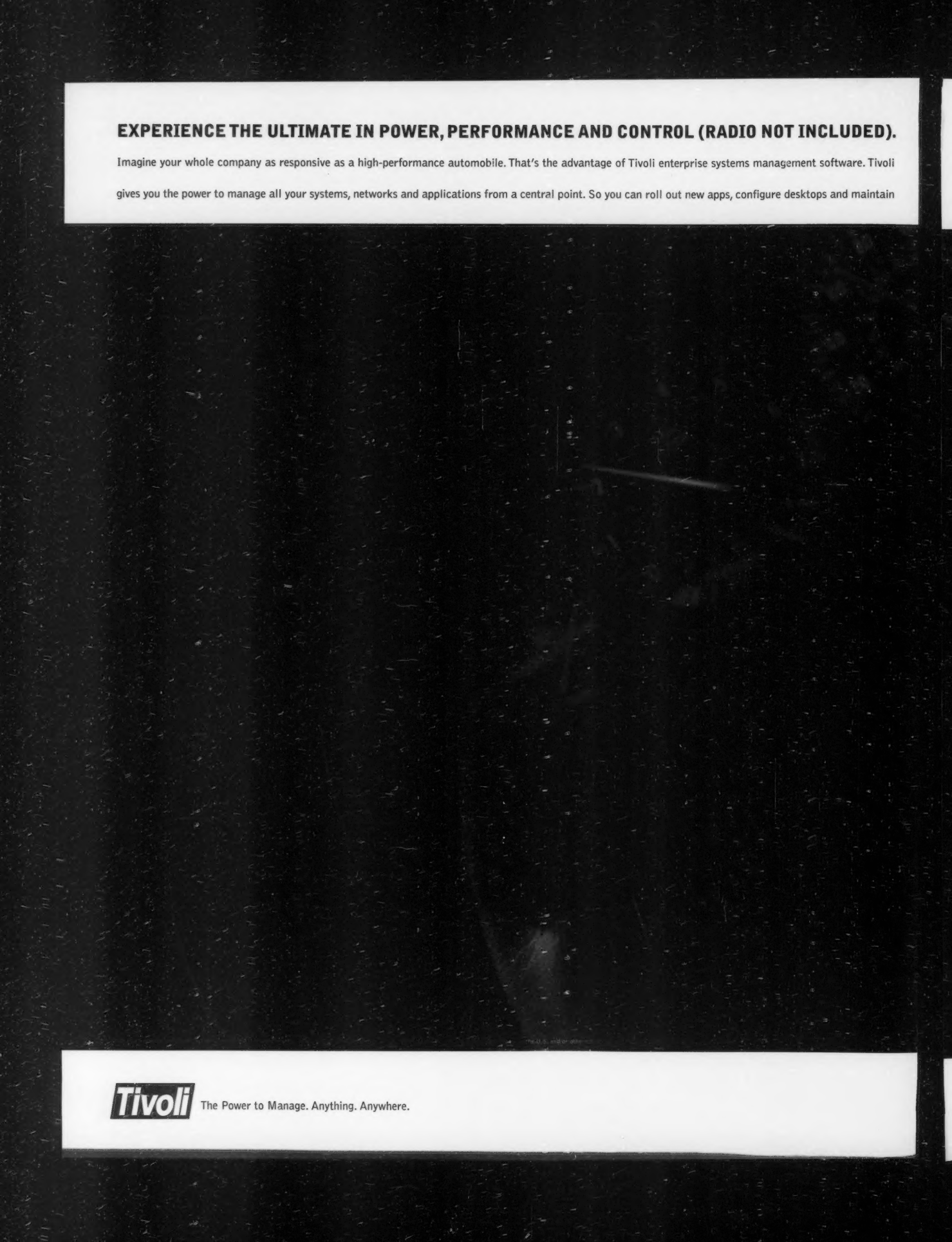

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In Depth

STARS, STRIPES

BY KIM S. NASH

Never before have so many technology-related bills whizzed around Capitol Hill — and the Internet plays a part in about two dozen of them.

In particular, IS managers should watch proposals on encryption and Internet taxation. The money-making potential of your electronic-commerce projects depends heavily on how members of the 105th Congress vote on those bills.

Unwanted electronic mail has seen a lot of attention from the Senate and House. No fewer than three bills designed to curb spam have been introduced since May.

On the vendor side, the anemic lobbying efforts by software and hardware makers puzzle Hill watchers. While other industries routinely send 50 or more lobbying groups to influence lawmakers, computer companies have sponsored just 10 to 12, according to Ken Wasch, executive director of the Software Publishers Association. The Washington-based organization is one such lobbying group (See related story, page 32).

Computer companies, with their traditional free-market outlook, have largely stayed away from legislative issues, says Susan Glasser, editor of *Roll Call*, a Washington newspaper that covers Congress. "But Congress is interested in their business now, and they will have to get their message across," she says.

Nash is Computerworld*'s senior editor, investigative reports. Her Internet address is kim_nash@cw.com.*

Following is a look at the impact 15 critical measures could have on information systems.

IS WORKERS

BILL
S. 798

TITLE: Information Technology Worker Shortage Commission Act (S. 798)

SPONSOR: Sen. John Warner (R-Va.)

WHAT IT WOULD DO: Create a 21-member group to figure out why U.S. companies can't find enough U.S. technology workers and what to do about it.

IS IMPACT: Offers hope for reducing hiring headaches.

OUTLOOK: Commissions aren't tough to approve.

ENCRYPTION and PRIVACY

BILL
S. 909
H.R. 695
H.R. 1903
H.R. 1367

While the Clinton administration continues to push for a policy that would force vendors or users of encryption tools to hand decryption keys to a "neutral" third party, few computer companies like the idea.

TITLE: Secure Public Networks Act (S. 909)

SPONSORS: Sens. John McCain (R-Ariz.), Robert Kerrey (D-Neb.), Ernest Hollings (D-S.C.)

WHAT IT WOULD DO: Says it would prohibit the U.S. government from holding keys to unlock encrypted products bought and sold by companies and individuals. But the bill calls for such a key-escrow system for federal agencies and anyone who uses a communications network built with federal money (such as the Internet). Also, 56-bit keys would become OK to export, but anything longer would require key escrow; knowingly using encryption to commit a crime would become a felony.

IS IMPACT: Companies that wanted to use encryption products on the Internet would have to hand over decryption keys to a government-approved third party.

OUTLOOK: Security experts and vendors oppose the bill. The CEOs of Adobe Systems, Inc., Intel Corp., Sybase, Inc. and other companies trooped to Washington last month to urge Vice President Al Gore and other officials to give up all plans to force key escrow. Criminalizing the use of cryptography in committing another crime is controversial.

TITLE: Security and Freedom Through Encryption (SAFE) (H.R. 695)

SPONSORS: Representatives Bob Goodlatte (R-Va.), Zoe Lofgren (D-Calif.) and 53 others

WHAT IT WOULD DO: Let anyone use or sell any encryption technology; let cryptography users retain decryption keys rather than relinquish them to a third party such as the federal government; criminalize knowingly using encryption to commit a crime.

IS IMPACT: Would allow freer use of encryption technology in firewalls and other security products.

OUTLOOK: The Clinton administration, which favors a key-escrow setup, dislikes the bill, but SAFE has lots of bipartisan support in Congress.

TITLE: Computer Security Enhancement Act (H.R. 1903)

SPONSORS: Reps. James Sensenbrenner Jr. (R-Wis.), George Brown Jr. (D-Calif.) and 11 others

WHAT IT WOULD DO: Strengthen security measures used in federal computer systems by having the National Institute of Standards and Technology (NIST) assess costs and risks of using commercial security technology. NIST would create tests to assess the strength of encryption products from other countries.

OUTLOOK: Strong support from Democrats and Republicans.

TITLE: Federal Internet Privacy Protection Act (H.R. 1367)

SPONSORS: Reps. Thomas Barrett (D-Wis.), Sue Kelly (R-N.Y.), Barney Frank (D-Mass.), Gerald Kleczka (D-Wis.)

WHAT IT WOULD DO: Stop federal agencies from putting some confidential records on the Internet; allow lawsuits from people whose data was made available online.

IS IMPACT: IS workers at government agencies would have to take special care to protect data that, in some instances, their commercial IS counterparts don't.

OUTLOOK: Bill was drafted after publicity about personal information that was available on the Social Security Administration's World Wide Web site. Protecting privacy is popular among congressmen and voters.

E-MAIL

BILL
H.R. 1748
S. 771
S. 875

Three competing junk E-mail bills are pending, each of which, if passed, could unclog spam-filled corporate networks. S. 771 could also clear the way for easier filtering of E-mail to block unwanted messages from user in-boxes. But Christine Varney, head of the Federal Trade Commission, is pushing spam proponents and critics to work together to devise their own guidelines.

TITLE: Netizens Protection Act (H.R. 1748)

SPONSOR: Rep. Chris Smith (R-N.J.)

WHAT IT WOULD DO: Outlaw unsolicited, unwanted junk E-mail; require that commercial E-mail must include the date and time the message was sent and the identity and return E-mail address of the business or individual.

OUTLOOK: Free-speech advocates dislike government censorship of E-mail based on content.

and CYBERSPACE

TITLE: Unsolicited Commercial Electronic Mail Choice Act (S. 771)

SPONSOR: Sen. Frank Murkowski (R-Alaska)

WHAT IT WOULD DO: Mandate that the first word in the subject line of commercial E-mail be "advertisement" without any prior text or symbol; that all routing information, such as return addresses, be valid; and that the name, physical address, E-mail address and telephone number of the sender be included in the body of the message. The Federal Communications Commission would investigate alleged abuses. A fine of up to $11,000 per incident could be imposed. Internet service providers wouldn't be liable unless they created the illegal E-mail.

OUTLOOK: Critics say the law couldn't be enforced and would encourage even more spam.

TITLE: Electronic Mailbox Protection Act (S. 875)

SPONSOR: Sen. Robert Torricelli (D-N.J.)

WHAT IT WOULD DO: Make it a crime to send E-mail from fictitious or unregistered domains or disguise the source of a message; compel senders to honor recipients' pleas to be removed from mailing lists; outlaw the sale or exchange of E-mail addresses for people who have previously asked to be removed from such lists. Violation of any E-mail rules adopted by an Internet standards body, such as the Internet Engineering Task Force, would be grounds for a lawsuit.

OUTLOOK: Viewed as the lesser of three evils by First Amendment proponents because it doesn't proscribe mail based on what it says but on how it's sent.

YEAR 2000

BILL
S. 22

TITLE: Commission of the Year 2000 Computer Problem Act (S. 22)

SPONSOR: Sen. Daniel Patrick Moynihan (D-N.Y.)

WHAT IT WOULD DO: Create a bipartisan group to study the reason for the year 2000 problem; figure costs for correcting federal and state systems; prioritize tasks.

IS IMPACT: If you're a government IS worker, expect to have the next three years of your life scheduled for you.

OUTLOOK: Commissions are relatively easy to approve.

INTERNET TAXES and REGULATION

BILL
S. 442
H.R. 1054
S. 474

TITLE: Internet Tax Freedom Act (S. 442 and H.R. 1054)

SPONSORS: Sen. Ron Wyden (D-Ore.), Reps. Christopher Cox (R-Calif.) and Rick White (R-Wash.)

WHAT IT WOULD DO: Prohibit any new state or local taxes on products and services sold online over and above the sales tax that might already be in place.

IS IMPACT: Would decrease new tax-tracking hassles for companies with online stores and, in theory, stimulate online commerce.

OUTLOOK: The Clinton administration supports the bill, but it's on hold after state and local governments, hungry for new revenue, delayed a vote that was originally slated for late last month.

TITLE: Internet Gambling Prohibition Act (S. 474)

SPONSORS: Sens. Jon Kyl (R-Ariz.), Dianne Feinstein (D-Calif.), Tim Hutchinson (R-Ariz.), Charles Grassley (R-Iowa), Tim Johnson (D-S.D.)

WHAT IT WOULD DO: Outlaw betting via the Internet in states and other countries where it isn't already legal. Violators could be fined up to $10,000 and/or receive up to two years in jail.

IS IMPACT: Companies that are aiming to make money online through gambling would have to rethink those plans.

OUTLOOK: Bipartisan support is there, but gambling lobbyists are fighting like mad to stop the bill.

TRADE

BILL
H.R. 143

TITLE: Software Export Equity Act (H.R. 143)

SPONSORS: Reps. Jennifer Dunn (R-Wash.), Robert Matsui (D-Calif.) and eight others

WHAT IT WOULD DO: Amend Internal Revenue Service rules to let software companies form foreign sales corporations for more favorable export taxes.

IS IMPACT: Software bought outside the U.S. could be cheaper.

OUTLOOK: Referred to the House's Subcommittee on Trade in January; hasn't been resurrected.

MISCELLANEOUS

BILL
S. 721
H.R. 72

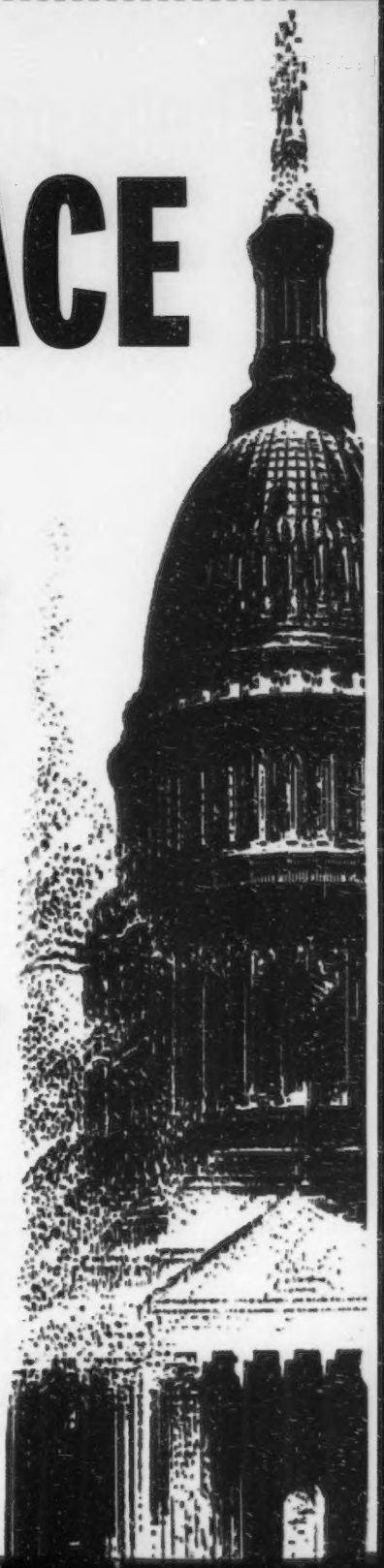
TITLE: Personal Computer Truth in Advertising Act (S. 721)

SPONSOR: Sen. Robert Torricelli (D-N.J.)

WHAT IT WOULD DO: Have the Federal Trade Commission study whether PC makers' marketing claims about CPU speeds are deceptive. Vendors like to advertise the internal speed of a CPU, which measures how fast, for example, math calculations are done. But the external speed, which is generally slower, is what affects how fast users can do tasks such as scroll a word processing document.

IS IMPACT: Buyers would be better able to assess whether upgrades are really necessary.

OUTLOOK: Placed on the back burner by the Senate. □



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IT Careers

FAMILIAR objects

Frustrated by the lack of available object-oriented programmers, many IS managers are looking within to retrain inexperienced staffers

By Alan Radding

THE DEMAND for information systems professionals with object-oriented language skills is so great that many organizations are, in effect, giving up looking outside.

Object-oriented forums on the World Wide Web are saturated with requests for professionals with object skills. And the available talent in the job market is asking premium prices. So IS organizations are turning to other means to fill their object programming needs.

"We basically have to retrain our own people," says Doug Darbyshire, a standards analyst at Cerner Corp. in Kansas City, Mo., which makes health care systems for hospitals and large health care providers.

Cerner hired about 40 engineers in recent months and hopes to hire dozens more. The company hits the usual job fairs and college campuses to rustle up raw object-oriented talent, but the overall results are disappointing.

In response, Cerner is organizing an object-oriented boot camp to train its people. And it is publishing successful object-oriented efforts to get its workers up to speed on object development.

TRAINING YOUR OWN FOLKS

It's a similar situation at Corning Telecommunications in Wilmington, N.C., the leading manufacturer of fiber-optic cores. "We'll take a general person and train them," says Mark Joyce, supervisor of fiber-optic engineering.

To complicate matters, Corning does its object-oriented development using Forte, a fourth-generation object language from Forte Software, Inc. "We'd love to find someone experienced in Forte, but there is such demand that they come at a very high price," Joyce says.

Despite aggressive recruiting on the Internet, through recruiters, in newspaper advertisements and on college campuses, Corning isn't able to scrape together nearly enough object-oriented talent. The company has had to settle for inexperienced people who require on-the-job training.

Corning is willing to pay a salary premium (an additional flat sum paid for having a specific skill), but Joyce has positions that he says could take up to six months to fill.

FORCED TO SETTLE

ObjectWave Corp. in Chicago, a custom Smalltalk development shop that specializes in large-scale transaction applications, also has had to settle for inexperienced object programmers.

The company constantly scours its database of almost 700 experienced object-oriented developers in an effort to lure away more. But the fast-growing company also seeks out unknowns. Each year, the company takes on a few interns and teaches them object-oriented programming and analysis and design. A few ultimately get hired.

"We look for bright people with a passion for learning," says founder Sam Cinquegrani.

And the national demand for object-oriented people will only increase.

Mitch Hadley, vice president of the Strategic Technology Group at NationsBank Corp. in Charlotte, N.C., says his company hopes to meet its object programming needs through retraining in-house staff, new hires and contractors. NationsBank isn't a leading-edge bank when it comes to technology, concedes Hadley, who describes the company as a "fast follower."

That means if NationsBank is preparing to scoop up object-oriented and Java talent, there are many more followers on its heels. □

Radding is a freelance writer in Newton, Mass.

Objects of desire

The skill and demand levels for top object-oriented languages

Skill set	% of companies with the skill	% of companies adding the skill	Salary premium paid for the skill
C++	32%	23%	9%
Java	9%	20%	8%
Smalltalk	3%	5%	7%

Source: Computerworld's 1996 Annual Skills Survey

COMPUTERWORLD

For advice on how to develop "competency" in your IS staff, visit our online IT Careers Web site at *www.computerworld.com/careers.*

IT CAREERS INDEX

The pace of IS hiring remains very strong at midsummer. A quarter of IS managers surveyed said they will be hiring this summer. And the number of temporary professionals being sought is on the rise.

	Within 3 months		Within 12 months	
	Permanent	Temporary	Permanent	Temporary
Percentage change in IS staff	2.3%	12.5%	1.4%	1.4%
Percentage of managers increasing staff	24.1%	12.5%	24%	10.5%
Percentage of managers decreasing staff	NA	NA	3.5%	5.3%
Percentage of managers maintaining staff	NA	NA	72.5%	84.2%
Current staff mix	Permanent 92.1%		Temporary 7.9%	

Base: 1,345 IS managers
NA=not available

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REGIONAL SCOPE

San Francisco & Northern California

BAY WATCH

By Kevin Burden

PHOTOS BY SETH ARTHUR

When it comes to alluring IS opportunities in Central and Northern California, all heads turn to the Bay area.

San Francisco has long been a destination for the imagination, drawing people in droves with its awe-inspiring beauty and cultural creativity. It's a place people choose rather than settle for. But more than just a place, San Francisco is a lifestyle — one for the taking these days for almost any information technology professional who wants it.

Someone once said, "The best thing about San Francisco is San Francisco." IT professionals may argue it's the job opportunities. There's an insatiable demand for IT talent, experienced as well as the college crop.

Hiring for information systems professionals can be rather light north of San Francisco. But an hour's drive south puts you in the heat of the activity and the heart of Silicon Valley — San Jose. Silicon Valley, roughly anywhere within a 30-mile radius of downtown San Jose, has always been a hotbed for IS talent. And it attracts as many IS professionals to the area as it produces. Still, the talent supply is falling short of the region's demand.

Where do I look, and what will it pay?

Additional material is available on specific Central and Northern California IS salaries and major employers at our online IT Careers Web site.
www.computerworld.com/careers

"It's pretty easy to find [an IS] job here in nearly anything you want to do," says Doug Olkein, engineering manager at GTE Government Systems Corp. in Mountain View. "There's been a boom of start-ups and emerging companies in our area. If you have any experience at all, you'll have your pick of jobs."

The hiring demand is so high, even graduates with just a computer science degree in hand are pursued as highly as seasoned pros. GTE Government Systems hires a fair amount of college talent every year, Olkein says. "And we're happy just to get a couple of years out of them before they move on," he says.

And it isn't uncommon for that green talent to command starting salaries of at least $50,000 per year, says Bill Gates, director of technology at Longs Drug Stores in Walnut Creek, a suburb 15 miles east of Oakland.

High salaries are only the beginning. Gates has offered, among other incentives, whitewater rafting trips down the American River in the Sierra Nevada Mountains. "We're all trying to attract people from the same pool, so we end up trying to best each other's packages," Gates says.

Fortunately for Bay area companies, the region itself does most of the initial attracting, and it allows companies to offer lots of great perks. "Everything is in reach — the ocean, mountains, national parks, even the desert, if that's what you're into," Gates says.

As for technical skills, they're all in demand, Gates says. Especially hot now are Internet skills, given that many initial public offerings are Internet start-ups.

But Unix and NT programmers are the truly wooed talent. "There's an astronomical demand for these types. It's been very difficult to keep these people on staff once we get them," Gates says.

HIGH-RENT DISTRICT

If that all sounds too tempting — jobs for the taking at dream salaries — hold on. The jobs are there, but the salaries are high because the cost of living is among the highest in the country. You'll need a raise just to maintain your accustomed economic lifestyle.

San Francisco Bay area residents spend an average of $40,969 per year on living expenses, according to the U.S. Department of Labor's Bureau of Labor Statistics. That's $7,000 more than the West Coast average and $10,700 above the national average. Like most places, housing is the largest expense. Although people nationwide spend an average of 32% of their total income on housing, Bay area residents spend 35%. That statistic alone makes two incomes per household very common.

"You'll need one hell of job to get by on one income here," Olkein says. □

Burden is Computerworld*'s features writer.*

WHAT'S WRONG WITH THIS PICTURE?

Good and bad points to consider for IS relocatees

GOOD POINTS	BAD POINTS
• IT jobs for the taking	• 6.5 million residents plus year-round tourism make it very crowded
• Hiring companies trying to outdo one another's perks	• Rents and housing prices are among the highest in the country
• Among the country's top telecommuting regions	• The cost of living is much higher than the national average
• Predictable Mediterranean-like climate	• Water too cold for comfort
• Relaxed dress codes	• The occasional earthquake
• Natural and cultural diversity	

RESOURCES FOR IS JOB HUNTERS

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www.ca.gov/s

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Tips on entertainment, the arts, contemporary culture and politics
www.sanfrancisco.com and *www.sanjose.com*

Association of Bay Area Governments
Information on land use, housing and economic development
www.abag.ca.gov

California occupational information
Job listings plus occupational information
www.soicc.ca.gov/#jobs

JobSmart
Job search guide for the Bay area
www.jobsmart.org/nocal/index.htm

Earthquake information
www.abag.ca.gov/bayarea/eqmaps/eqmaps.html

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The ideal applicant will possess a strong knowledge of the Internet, the Web, large-scale databases and all of their underlying implementations. You will be responsible for leading the development/operation of Excite's spider technology; promote the use of data derived from the spider in Excite's products and services; be an effective leader; and have a proven record as a technical lead or manager. Relevant skills should include a mastery of HTTP, DNS, Internet architecture, C programming, and large-scale database programming, as well as working knowledge of Perl, C++, TCP/IP. Applicant should have at least a BSCS (or equivalent) and a minimum of 7 years' industry experience.

100% Tools Group Application Engineer

Participate in the development and improvement of database-driven web applications using HTML and Java applet interfaces to back-end Oracle databases and other multi-tier distributed applications. Experience developing database applications is required, as are strong C++, Java, and Perl skills. Unix and Windows NT experience required; NetDynamics or other server-side Java experience a plus. You will be responsible for improving functionality and user experience in existing tools and participate in the development of future tools to manage production and workflow. Strong communication skills and the ability to work with non-technical end-users to develop future feature requirements is essential.

100% Senior Search Engine Developer

Participate in the design, implementation, and deployment of Excite's core technology, a concept-based search and retrieval engine with supporting distributed architecture. Ideal applicant will have at least 7 years' industry experience; a proven track record of shipping commercial products; and experience in building upon very complex C++/UNIX software systems, designing complex algorithms, and optimizing use of hardware resources. Applicable backgrounds: information retrieval, computational linguistics, data compression or pattern recognition, network programming, and client-server development involving fail-over and load-balancing systems.

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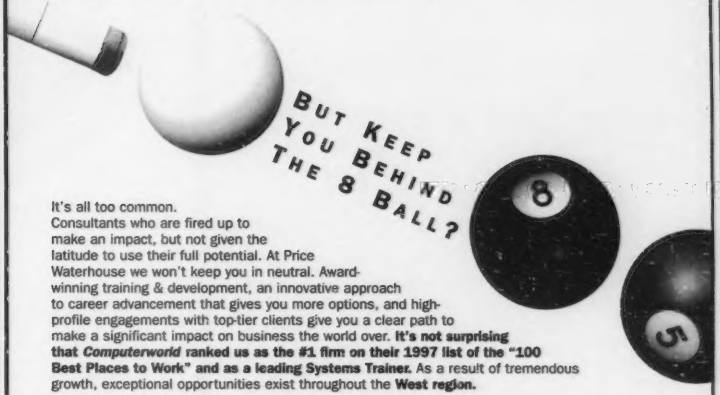

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Provide leadership and direction for the Technical Services department. Supervise and provide management of technical personnel, confer with and support University of Alaska Data Administrator in university wide database standards and design. Responsible for planning, evaluation, development and management of a full range of: DBMS, security, storage administration, system software installation and maintenance, capacity planning, technical assessment, quality assurance of technical services and for quality/stability of systems and networking software platforms.

Systems Programmer **Deadline: August 8,1997**

Provide specialized technical and detailed program maintenance, development, project management, and support for University of Alaska systems central mainframe and peripheral operating systems and layered software.

To be considered an applicant, submit letter of interest, resume and three references to: Sallie Stuvek, Statewide Office of Human Resources ,212 Butrovich Building, PO Box 755140, Fairbanks, Alaska 99775-5140 Tel: 907-474-7894, Fax: 907-474-5934, Web: info.alaska.edu/UA/jobs, E-mail: snsms@orca.alaska.edu.

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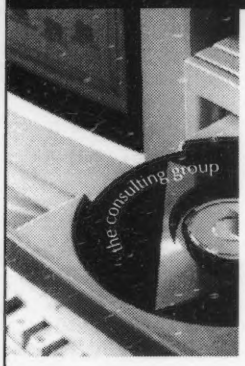

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SOFTWARE PROJECT MANAGEMENT
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Automate the testing phase of the SDLC using capture/playback and validation tools. Experience in Integration, Regression, and/or Load testing is preferred.

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Develop test plans, manage testing activities, develop & execute test cases, report & track software defects. Experience in regression, integration, and acceptance testing.

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SOFTWARE TESTER Chem-Tech, Ltd. a Software & Telecommunications Company seeks a Software Tester to test, recommend & design various design protocols to enhance & develop the PCS cash register applications systems. Candidates will qualify with MS in Computer Science & either 1 yr exp in the job or 1 yr exp as a Software Developer or Software Engineer in using testing tools & C/C++ & MFC for communications & GUI. Position is full-time. To apply please send resume to: HR Dept., Chem-Tech Ltd., 781 Pearson St., Des Plaines, IL 60016.

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Computer Software Consultant; test, debug, and program enhancements to bus. develop. applics. on an HP3000 thru a PC net.; use FoxPro to create test cases; use var. debug. tools, incl. QEDIT and MPE/IX3.0; generate reports and test plans using Testbed and ReportWriter; tech. review of COBOL II progs accord. to SRD; syst. docum. as necess. MIN QUAL: B.S.-Comp. Sci.; 3yrs. exp. as Comp. Prog./Analy.; exp. must incl.: COBOL II prog. on mainframes, JCL and MPE/IX, FoxPro and ReportWriter, line-by-line debug., and test data modeling. M-F, 8am- 5pm; $50,000/yr.; Employer Paid Ad; Send resume to: MESC, 7310 Woodward, Detroit, MI 48202; Ref# 175696.

Programmer/Analysts (10 Positions) (Madison, WI) Implementation of HP-Openmail servers. Administer HP and UNIX operating systems. Develop programs in VISUAL BASIC, C++, and UNIX Scripting. Develop customized e-mail applications using VISUAL BASIC. Require Bachelor's Degree in Computer Science or equivalent plus 6 months exp. in job offered. $36,000/year, 40 hours/week, 9-5, M-F. Two copies of resume to M. Brooks, File #960311; DWE-ALC, P.O. Box 7972; Madison, WI 53707-7972. Reference File #960311.

Software Engineer -- coordinate design, development & implementation of software systems consistent w/ applicable hardware environment; engage in software system analysis, programming & testing to maintain compatibility w/ user requirements & time/cost constraints; develop & implement enhancements to software systems in client-server areas utilizing knowledge of & exp. w/ ORACLE, Stored procedures, SQL, SQL*Report Writer, Visual Basic, Delphi and C languages on UNIX & MS-WINDOWS platforms; data modeling including logical & physical design of database; system maintenance after implementation of software modifications & enhancements; prepare technical documentation for user reference; Requires BS in computer science, computer applications or electronics engineering, plus 4 YR exp or MS in computer science, computer applications or electronics engineering plus 2 YR experience. $49,000/YR. 40 HR/WK. HRS 9-5:30. Job in Irving, TX. Must have proof of legal authority to work in the US. Mail resumes to ISS, Attn: Hari Chembukave, 1300 West Walnut Lane, Suite 215, Irving, TX 75038.

Database Design Analyst. Merrillville, IN based info technologies co. seeks candidate w/1 yr exp as Database Design Analyst or 1yr exp as Software Engr or Database Administrator (exp must incl: Progress, Visual Basic, Oracle, VAX/VMS; MS Win/WinNT, SQL Server, Novell Netware & TCP/IP). MS-Comp Sci or Elec Engg. F/T position. Respond to: HR Dept., Infotech Computing Group Inc., 409 West 81st Ave, Merrillville, IN 46410.

Programmer Analyst - Detroit, MI - Analyze user reqs, perform logical & physical database design for client-server architecture on UNIX based platforms using ORACLE. Develop applications using ORACLE*Forms, ORACLE*REPORTS, PL/SQL and Pro*C. Tune ORACLE database & applications. Write program specs and systems docs. Enhance/debug existing systems and programs. Reqs Bach in Comp. Sci., Math or Electronics Engr and 3 yrs exp inc 6 mos using ORACLE CASE v5.1 or later. M-F, 8AM-5PM, 40 hrs/wk, $70,000/yr. Send resume to: 7310 Woodward Ave, Rm 415, Detroit, MI 48202 Ref #181096

Applications Programmer (4 positions available). For Wisconsin wholesale leisure travel marketing firm. DUTIES: Design, write, test, document, maintain, and enhance program modules for proprietary computerized reservation system, travel management systems, and communication links to CRS systems, travel agents, airlines, and car rental companies, using COBOL and Visual Basic programming languages, SQL & Enscribe database query languages, and DOS, Windows, and Tandem Guardian operating systems, for PCs and Tandem distributed systems. Work with system users to resolve programming problems and ensure programs meet user needs. REQUIRES: B.S. in computer science, computer engineering, or math. **Salary:** $33,060. 40 hour work week; **M-F; 8:00 a.m. to 5:00 p.m. SEND 2 COPIES OF RESUME TO MIKE BROOKS; DWE-ALC; PO BOX 7972, MADISON, WI 53707-7972. REFER TO CASE NO. C100180.**

Systems Analyst: Performs computer systems analysis, design, modification, configuration, implementation, and integration of Windows NT/UNIX based LAN and/or WAN for computer system purposes of insuring appropriate data flow in a network environment by creating customized communication protocols such as TCP/IP and PPP. Uses various systems tools and methodologies for implementation of software on various network environment installed in multiple platforms including establishment of appropriate client/server security devices to insure data integrity. Requires Master's degree in Computer Science. Please send resume to: Richard J. Moore, Shepro Braun Systems, 30 West Monroe Street, Chicago, Illinois 60603. No Calls.

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Systems Network Engineer: Develops, implements, configures, and maintains networked based business computer software on HP UNIX, SCO UNIX, and other platform environments over network connections. Will design appropriate LAN and WAN network architecture including assignment of subnetwork segments. Establishes and integrates an Ethernet network using TCP/IP, Frame Replay, ISDN (or 128K DDN) telecommunications protocols connection. Configures and maintains such routers and network hubs, such as Synoptic 3000 including establishment of an optical fiber backbone base, as required for administration of locally and remotely installed UNIX servers including establishment of UNIX files and intent and internet mail system using SMTP and UUCP or POP3 and audio network evaluation using HP openview and Motif interface. Will evaluate and plan the establishment of Oracle and Informix relational databases in a network environment including insurance that data can be accessed both in a LAN and WAN environment. Requires Master's degree in Computer Science. Also requires one year experience in the job to be performed. Job location: Elk Grove Village, IL. Must have proof of legal authority to work permanently in the U.S. 40 hours per week, 8:30 am. to 5:30 p.m. Salary: $55,000 per year. Please send resume to ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY, 401 South State Street - 7 North, Chicago, Illinois 60605, Attention: Janet Aschenbrenner, Reference #V-IL17495 A AN EMPLOYER PAID AD NO CALLS - SEND 2 COPIES OF BOTH RESUME & COVER LETTER.

Database Administrator - Multiple Openings: Design, development and implementation of an information delivery road map supporting business quality goals and measurements; integrate the individual Quality metrics into a streamline Quality Information Warehouse (Digital platform in VAX/VMS and ULTRIX) reporting system. The information delivery is a client/server based system using the latest World Wide Web technology. The server is comprised of CGIs written in PRO C and C++ and will use SQLNET to interact with ORACLE Database. Requirements: M.S. in Computer Science or Information Systems plus either 3 years experience in job offered or 3 years experience as Programmer/Analyst or Software Engineer. Related experience must have utilized ORACLE and object-oriented database mapping over relational database models, programming in C and C++, operating system experience in a digital (DEC/VAX) environment and development of WEB-based client-server application systems. 40 hours per week, 8:00 a.m. to 5:00 p.m., $60,000 per year. Send resume with social security number to Indiana Department of Workforce Development 10 N. Senate Ave., Indianapolis, IN 46204-2277, ATTN: Sean Blancaneaux. Refer to ID #3450530.

Applications Programmer Analyst: Design, develop, test & implement new insurance & financial software applications for use by clients primarily in the financial & insurance industries. Design & create relational databases, object oriented & client/server applications using C, C++, Sybase, UNIX Shell Scripts, Structured Query Language (SQL), stored procedures, triggers, Sybase CT-Libraries, Microsoft Windows, Inter-Process Communications (IPC), Open Database Connectivity (ODBC) & Rapid Application Development (RAD) methodology. Analyze, evaluate & design new systems using object oriented methodology. Act as a Sybase Consultant responding to all client concerns & issues related to Sybase. Some projects performed at client sites in various geographic locations. Develop Sybase Open Server programs (Daemons) & UNIX utilities that manage large work allocation environment. 40 hrs/wk, 9am - 5pm. $57,000/yr. Minimum Requirements: Master of Science in Management Information Systems. Must have completed one course each in: 1) Business Applications Database Management Systems; 2) Object Oriented Design & Programming; 3) Unix Shell Programming. 2 years experience required in the job offered or as a Programmer Analyst or Systems Analyst. Experience must include completion of a major project in relational database design using Sybase/SQL in the UNIX environment. Must have development experience in Object Oriented Design & Programming using C++ in a client/server environment. Must have proof of legal authority to work permanently in the U.S. Submit 2 copies of both resume and cover letter to the: Illinois Department of Employment Security, 401 S. State Street - 3 South, Chicago, IL 60605. Attn.: Janet Aschenbrenner, Ref. #V-IL17336-A. An employer paid ad. No calls.

Software Engineer - 40hrs/wk, 9am-5pm, $62,000/yr. Analyze design, develop & implement client/server applications. Involves system integration & multi-platform connectivity, subsystem integration, application translation/migration & process re-engineering. Design & install network solutions in multi-vendor, multi-protocol environment using IP, IPX & Appletalk. Position calls for specialized use of groupware technology including Lotus Notes, Internet Integration & Application Development with HML Editors. Requires bachelor's in electronic engineering & four years experience in the job offered. Send resume & cover letter to Leah Blackwell, Blackwell Consulting Services, 100 S. Wacker Drive, Ste 200, Chicago IL 60606.

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Successful candidates must have a Bachelor's in Computer Science or Business Administration or the equivalent education/experience and a tenure of at least 7-8 years in an information systems department of a large scale commercial organization. We also require experience with multiple desktop and server OS, multiple RDBMSs, programming languages and programming APIs; and strong project planning, management and budgeting skills.

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Member of Scientific Staff, Software Engineer: Design, develop, test and maintain call processing software with focus on intelligent networking services, automatic call distribution, feature processing environment, Integrated Services Digital Network, and Signalling System 7 protocol related software functionalities; load & configure a switch, test feature functionality. Minimum Requirements: B.S. degree in Computer Science with 2 years in the job offered or 2 years related experience in telecommunications software engineering or M.S. degree in Computer Science with 6 months' experience to include software design and development of telephony applications, work with networking protocols and work in Unix environment. 40 hrs. Week; Salary $42,000/year. Applicants apply at the Texas Workforce Commission, Dallas, Texas, or send resume to the Texas Workforce Commission, 1117 Trinity, Room 424T, Austin, Texas 78701, Job Order TX7857665. All applicants must be eligible for employment in the U.S. Ad Paid by An Equal Opportunity Employer.

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Software Engineer. $60K/yr. 8a-5p, 40hr/wk. Dsgn/dvlp & maintain client server systm using Powerbuilder, Sybase, SQL, HTML, ERWIN, WebDB, (UNIX) Shell Script, DOS, Novell Network, UNIX, Windows 3.1/95, NT, Unix running on PC's & Unix Workstations. Dvlp systms & functional specs for new & current systms. Dvlp screen flows/reports/queries & data base scheme. Masters or equiv-Comp Sci or Engg. 6mon exp in job offd or related occup of s/ware consultant. Job loc: Charlotte, NC. Interested applicants apply to nearest Job Service Office or submit resume w/applicant's soc sec # & JO#NC2668337 & DOT code 030.162-010 to: Job Service, 500 W Trade St, Charlotte, NC 28202.

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Responsible for performing requirements analysis and design using Object Oriented methodologies and tools. Additional duties include defining and developing the project architecture, methodology and tool selection processes, designing common technical services useful for the project as well as developing Object Oriented software in Smalltalk or Smalltalk with Envy/Developer and Oracle database or Object database. Master's degree in Computer Science, Business or Engineering. At least one year of experience in job offered or as a Systems Analyst with experience in Object Oriented analysis and design methodologies using Smalltalk and Oracle relational databases. High mobility preferred. 40 hrs/wk, 8 a.m. - 5 p.m., $82,500/yr. Qualified applicants should report/submit resume to Mr. James McCoy, Manager, Office of Employment Security, 6206 Broad Street, Pittsburgh, Pennsylvania 15306. Reference Job Order #9071199.

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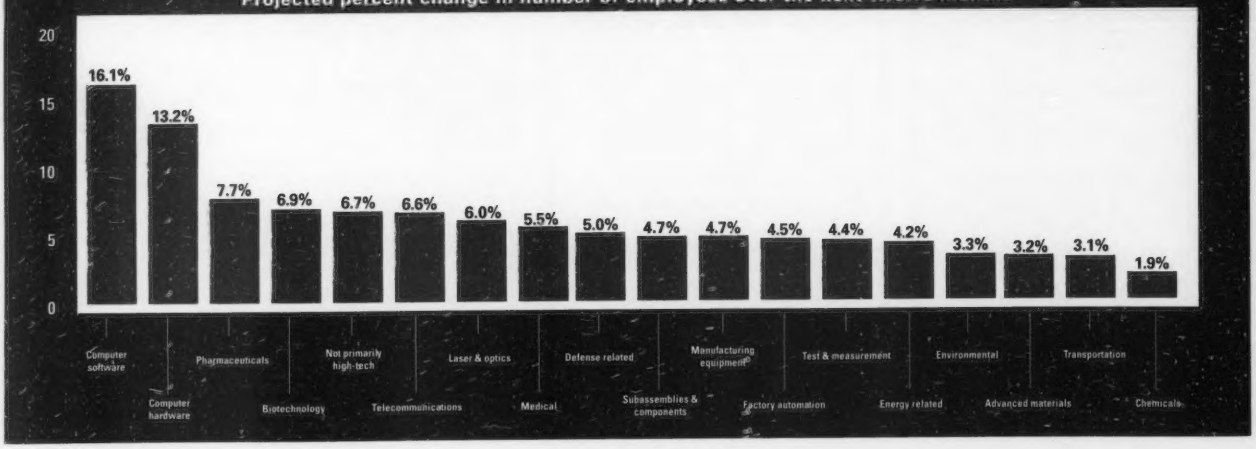

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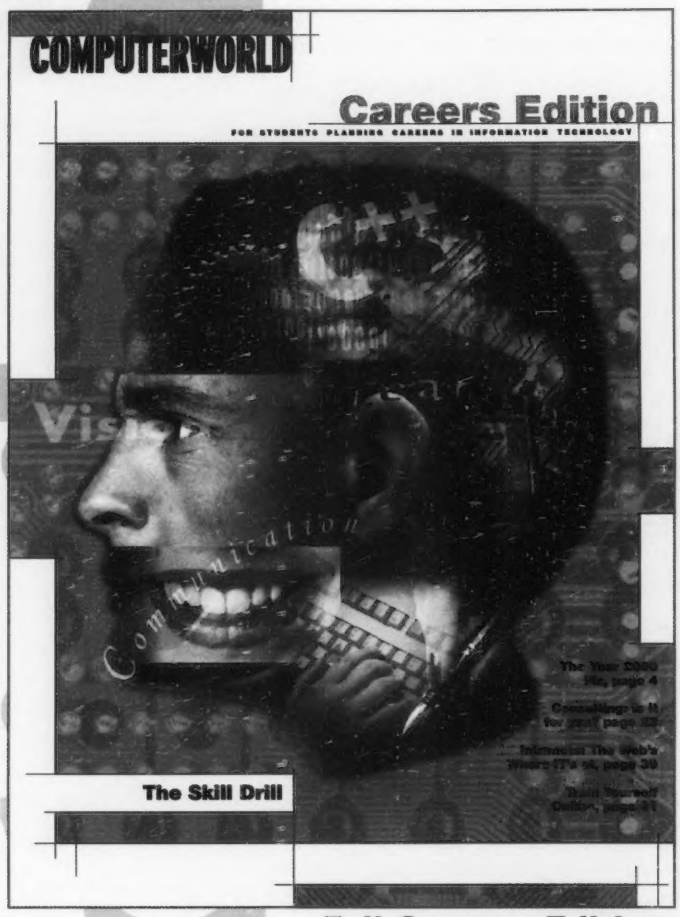

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NEW & NOTABLE

TAC Systems' LANRedi™ Jazzband introduces innovative networked storage solution

TAC Systems, Inc. announced the addition of the LANRedi™ Jazzband to their extensive line of networked storage towers. The LANRedi Jazzband fuses the latest innovations from three technology leaders to offer unprecedented quality and speed. Users get TAC's sound record for superior construction and customer service, a built-in server from AXIS Communications, and seven removable, one-gigabyte Iomega Jaz® drives.

TAC Systems' CEO, Luis Ayala comments, "This product is an industry first. We've taken the fast and easy-to-use Jaz drive and made it into a free-standing, rewritable storage tower that can be easily connected to a local network." Featuring integrated network technology, the LANRedi Jazzband requires no additional server resources for Novell®, Windows® NT, and Internet networks. Users simply plug a 10Base-T Ethernet cable into the back of the tower for quick network access. The LANRedi Jazzband recognizes IPX and TCP/IP protocols for a direct Internet connection and supports NFS, SMB/IP, NetBEUI.

The LANRedi Jazzband's classic lines offer an attractive solution for storing large amounts of data. The compact design measuring 15"h x 6"w x 12"d ensures that desk space is not compromised. Weighing only 35lbs, the LANRedi Jazzband is very portable too. The seven-bay LANRedi Jazzband lists for under $8,000. A four-bay configuration is available for less than $5500. Both models can be upgraded to 32 megabytes RAM. Contact: Candice Dunaway, TAC Systems, Inc. at (205) 721-1976, or e-mail cdunaway@tac.com, or www.tacsystems.com

Veteran Coral Gables Art Director Takes Designs Online.

During 20 years as a graphic designer and art director, Steve Hall proved he is part of a rare breed: He made much of his living from lawyers, helping to make them look good.

Steve got them to admit they didn't know a lick about the visual arts, and swung countless assignments developing marketing brochures, publications and law firm images.

Lawyers weren't the only ones who gladly stepped aside and let Steve work his magic. Universities, foundations, hospitals and temporary help firms all found a need for his conceptual and artistic talents.

Now, Steve is working for developers to help them dress up their apps and sites for Internet and Intranet use.

Steve is the first to admit he has no intention of being all things to all people. Here's what Steve isn't:

"I can't write a lick of code," he says. "And frankly, I don't want to."

Here's what Steve does best:

"I am a good designer," he says. "I understand how screens are put together and I appreciate what makes a design look good."

Recently, Steve completed assignments for a health care company that needed its records access system spruced up. Another company summoned him to deck out its administrative Intranet system in various shapes and colors. Both clients found Steve to be fast, efficient and an easy-going work partner.

"What suits me best is a combination of consulting and hands-on design," he said. "I might sketch out a few ideas on a napkin or a scrap of paper." Then it's back to the office to work out the problem, and communicate via fax or email. But please, no long-term on-site assignments. "I've got a very nice wife and three terrific kids, and I'd prefer an evening with them rather than sitting in a hotel room."

For a look at Steve's work, check the samples at www.kreative.com/visuals. And don't worry about his sleeping dog, Pep, on your way in. He's a peaceful fellow who doesn't bite.

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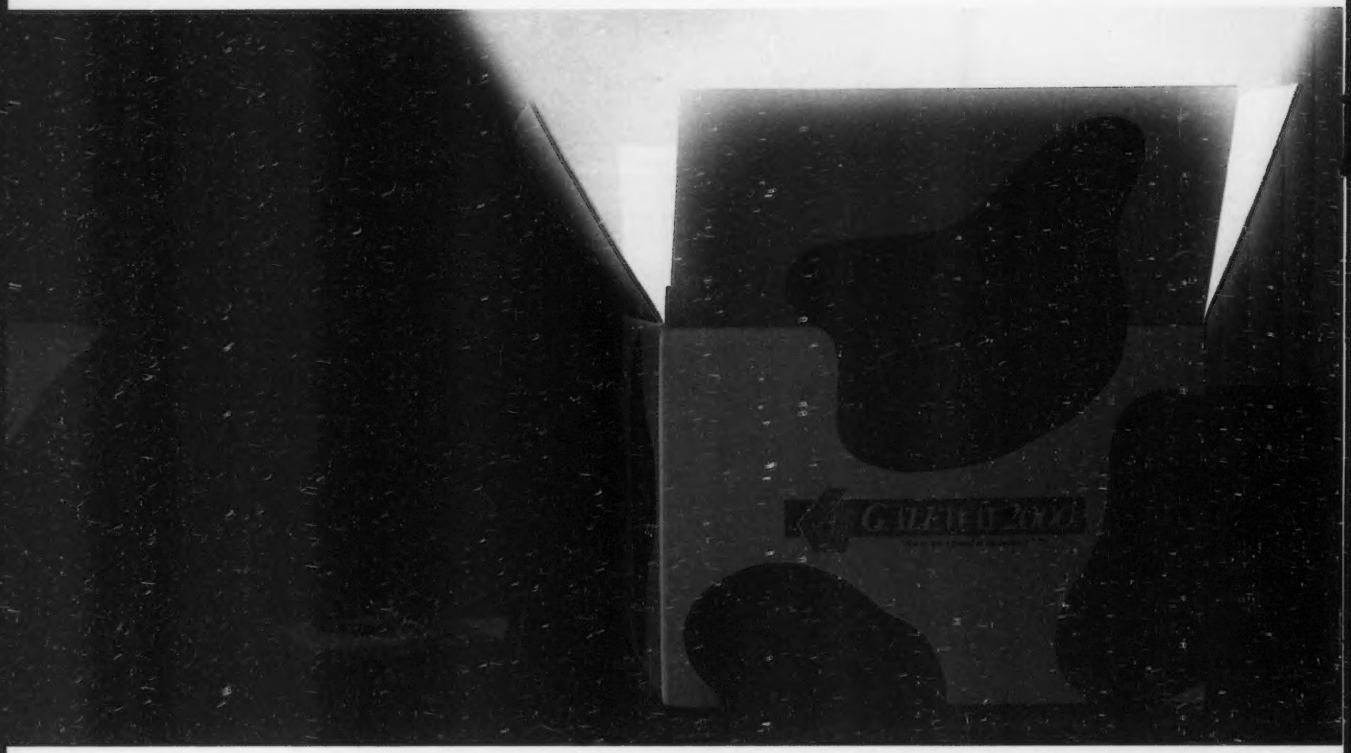

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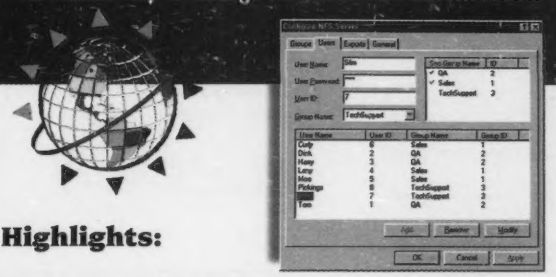

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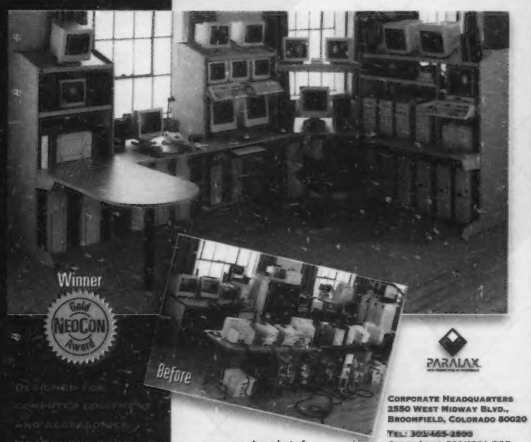

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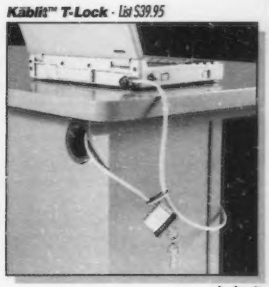

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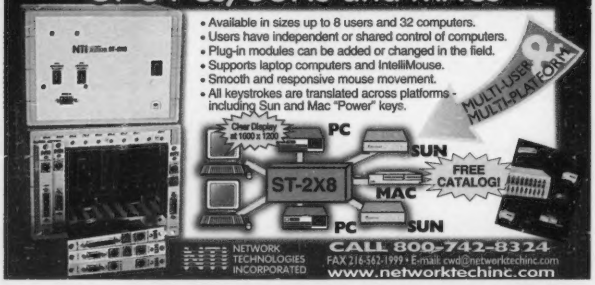

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CONSUMER DISCLOSURE Different creative presentations of the sweepstakes may present different prize choices. Values at a given prize level will be approximately the same. All prize winners will leave the option of selecting any prize offered at level won. Number, estimated maximum retail value and odds of winning each prize are as follows: 1 Grand Prize - $25,000 (or cash alternative of $25,000); 1 First Prize - $2,000; 1 Second Prize - $1,000; 50 Third Prizes - $80; 1,000 Fourth Prizes - $65 each; 1 Early Bird Prize - $5,000. Total prize value: $102,000.00. Certain creative presentations of the Super Prize Sweepstakes may present an Early Bird Prize. To qualify for the Early Bird Prize, if the Early Bird Prize is presented in your offer, your entry must be received by the Early Bird date specified elsewhere in this offer. Odds of winning any prize are determined by the total number of eligible entries received. Distribution of sweepstakes will not exceed 300 millions. All Super Prize Sweepstakes prizes will be awarded.

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For winners list (available after 9/30/98) send self-addressed, stamped envelope by 1/15/98 to: Super Prize Winners, P. O. Box 9193, Medford, NY 11763-9193.

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Winner notification will be by mail. A winner may be required to sign and return an Affidavit of Eligibility/Liability/Publicity Release within 14 days of date printed on notification or he/she will be disqualified. Any prize/prize notification returned as undeliverable will result in disqualification. If a major prize is won by a minor, it will be awarded to parent or legal guardian and the Affidavit of Eligibility and Release must be signed by the parent or legal guardian. Except where prohibited by law, winners consent to the use of their names, hometowns, likenesses and photographs for advertising and publicity without additional compensation.

Sweepstakes is open to legal residents of the U. S., Canada and Europe (in those areas where made available) who have received the offer. In the event that the designated recipient of the offer has moved, the offer may not be valid in the state, country or province to which the offer has been forwarded. Void in Puerto Rico and where prohibited by law. All federal, state, provincial and local laws and regulations apply.

All prize values are in U. S. currency. No transfer of prize permitted. A winner is responsible for all taxes on his/her prize.

Canadian residents, in order to win, must first correctly answer a time-limited skill testing question administered by mail. Any litigation regarding the conduct and awarding of a prize in this publicity contest by a resident of the province of Quebec may be submitted to the Regie des alcools, des courses et des jeux.

Sweepstakes may be presented in different creative presentations by different organizations. Ventura Associates, Inc., 1040 Avenue of the Americas, New York, NY 10018, the independent judging organization has provided all prizes at no charge. Ventura Associates, Inc., reserves the right to withdraw the promotion if it becomes technically corrupted.

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COMPUTERWORLD TECHNOTOYS WEEKLY SWEEPSTAKES OFFICIAL RULES: No purchase necessary. Complete official entry form or print all entry information on plain paper, including this week's prize and fax to: (800)998-2298. Incomplete entries not eligible. Sweepstakes begins 12:01 am (EST) Monday (the date of the issue). All entries must arrive by fax no later than 11:59 am Monday of the following week. The issue date can be found at the top of most pages of this magazine. Sponsor not responsible for telephone or fax equipment failure or delayed transmission. All entries become sponsor's property & will not be returned.

Winner will be determined in a random drawing on or about 5:00 pm (EST) the Monday following the issue date. You need not be present to win. The prize (and its retail value) detailed with the entry form is guaranteed to be awarded & delivered to winner approx. 30 days from drawing date. If notification letter or prize is returned as undeliverable, it will be awarded to an alternate winner at random. No prize substitutions except due to unavailability, in which case a prize of equal value will be awarded. Prize not transferable or redeemable for cash. All taxes on prize are winner's responsibility. Acceptance of prize constitutes permission (except where prohibited) to use winner's name, hometown & likeness for promotional purposes without additional compensation.

Sweepstakes is open to legal US residents, 18 & older. Odds of winning determined by total number of entries received. Est. distribution: 150,448. Sponsor: Computerworld, Inc. 500 Old Connecticut Path, Framingham, MA 01701. Employees of Computerworld, Inc., its affiliates, subsidiaries, retailers, advertising & promotion agencies & immediate families of each not eligible. All federal, state & local laws & regulations apply. Void in Puerto Rico & where prohibited by law.

For winners list (available within 4 weeks of the drawing), send a SASE to: Sweepstakes Winners, Computerworld TechnoToys Sweepstakes, 500 Old Connecticut Path, Framingham, MA 01701.

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STOCK TICKER

The Week in Stocks

Gainers

PERCENT

Hummingbird Comm. Ltd.(H)	41.1
Radius Inc.	37.5
Intersolv Inc.(H)	31.3
Cirrus Logic	24.6
Octel Communications Corp.	24.5
System Software Assoc.	24.3
At Home Corp.	23.5
Iomega Corp.	20.6

DOLLAR

Texas Instruments(H)	18.13
Dell Computer Corp.(H)	14.75
Microsoft Corp.(H)	12.69
Intel Corp.(H)	11.00
Hummingbird Comm. Ltd.(H)	10.63
IBM(H)	7.25
McAfee Associates(H)	6.88
Sun Microsystems Inc.(H)	6.56

Losers

PERCENT

Cambex Corp.	-26.0
SynOpsys	-24.6
Racotek Inc.(L)	-18.9
Network Computing Devices	-18.6
Centura Software	-17.6
NetManage Inc.	-17.5
Retix	-16.3
FTP Software Inc.(L)	-16.2

DOLLAR

SynOpsys	-9.81
SBC Communications	-4.88
Micro Focus(H)	-4.75
Xerox Corp.(H)	-4.56
America On-Line(H)	-4.50
AMERITECH Corp.	-4.00
Sprint Corp.	-3.94
LSI Logic Corp.	-3.31

INDUSTRY ALMANAC

Compaq's flying high

In the past six months, Compaq Computer Corp.'s (NYSE:CPQ) steadily rising stock price has made it a darling of the stock market. The Houston company's strong earnings report last week, its price cuts on PCs, its product line expansion and its new build-to-order program did nothing to change that feeling.

With the good news, the stock price last week soared $8 per share in one day to close at $128 per share.

Investors also may be optimistic about Compaq's pending acquisition of Tandem Computers, Inc. (NYSE:TDM) in Cupertino, Calif., for $3 billion. Analysts say the move may extend Compaq's reach into the corporate market.

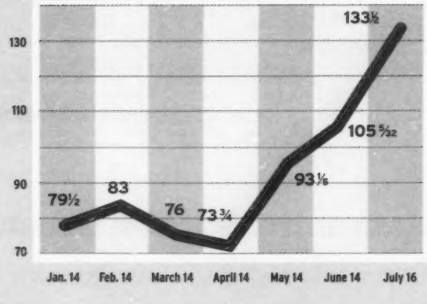
Analysts say Compaq's price cuts — up to 22% on some PC models — are a challenge to direct-marketing companies such as Dell Computer Corp. in Round Rock, Texas. Dell recently reduced corporate desktop prices by 13%.

But analysts don't consider the cuts the start of a price war. "There's a price gap between Dell and Compaq that has been closed — but not completely," says David Wu, an analyst at Chicago Corp. in New York.

Vendors aren't willing "to forego profitability just to maintain volume and market share," says Jay Vleeschhouwer, an equity analyst at Josephthal Lyon & Ross, Inc. in New York. Vleeschhouwer says Compaq stock, which sold at around $127 per share last week, could rise to $140 per share. Compaq's moves will probably keep the firm growing at a high rate, says Michael J. Geran at the Pershing division of Donaldson, Lufkin & Jenrette, Inc. in New York. — Patrick Thibodeau

ON THE RISE

Compaq's share price has moved up in recent months due to strong earnings, price cuts and product expansion



Exch	52-Week High	52-Week Low	Range	July 18 2 PM	Wk Net Change	Wk Pct Change
Communications and Network Services						**OFF 1.84%**
COMS	81.38	24.00	3 COM Corp.	54.25	-0.25	-0.5
AIT	71.75	49.63	AMERITECH Corp.	65.50	-4.00	-5.8
ASND	80.25	36.13	Ascend Communications	50.38	2.44	5.1
T	42.63	30.75	AT & T	34.50	0.63	1.8
BNYN	7.88	1.19	Banyan Systems Inc.	2.19	-0.06	-2.8
BAY	30.63	15.38	Bay Networks Inc.	28.00	0.25	0.9
BEL	78.25	55.13	Bell Atlantic Corp.	69.13	-2.44	-3.4
BLS	48.69	35.25	Bellsouth Corp.	45.00	-1.69	-3.6
BRKT	42.25	9.25	Brooktrout Technology	10.75	0.13	1.2
CS	46.50	26.50	Cabletron Systems	30.94	-2.00	-6.1
CGRM	17.50	8.61	Centigram Communications	12.50	-0.25	-2.0
CSCO	80.00	44.75	Cisco Systems Inc. (H)	76.88	1.50	2.0
CMNT	7.00	3.75	Computer Network Tech.	3.88	-0.19	-4.6
DIGI	33.13	12.63	DSC Communications	28.94	2.31	8.7
FORE	43.63	10.00	FORE Systems Inc.	14.38	-0.75	-5.0
GDC	12.50	6.13	General Datacomm Inds.	7.88	0.31	4.1
GSX	53.00	36.13	General Signal Networks (H)	51.56	0.25	0.5
GTE	49.38	37.75	GTE Corp.	46.38	-0.25	-0.5
LU	90.75	33.13	Lucent Tech. (H)	85.75	6.19	7.8
MADGF	16.13	4.50	Madge Networks NV	6.88	0.75	12.2
MCIC	43.38	22.38	MCI Communications Corp.	33.75	-2.38	-6.6
NETM	11.13	2.50	NetManage Inc.	3.25	-0.69	-17.5
NTRX	8.50	1.44	Netrix Corp.	2.13	0.00	0.0
NCDI	16.25	3.00	Network Computing Devices	8.75	-2.00	-18.6
NWK	20.88	11.13	Network Equipment Tech.	18.88	0.81	4.5
NETG	30.25	11.13	Network General	13.53	0.03	0.2
NN	52.06	20.25	Newbridge Networks Corp. (H)	49.81	-2.13	-4.1
NT	107.19	46.13	Northern Telecom Ltd. (H)	102.88	2.69	2.7
NOVL	13.00	6.28	Novell Inc.	6.84	-0.03	-0.5
NYN	59.88	42.00	Nynex Corp.	52.31	-2.25	-4.1
OCTL	31.75	13.50	Octel Communications Corp.	30.19	5.94	24.5
ODSI	24.25	9.75	Optical Data Systems Inc.	11.81	-1.38	-10.4
PCTL	40.38	8.25	Picturetel Corp.	9.13	-0.38	-3.9
PTON	4.25	1.31	Proteon Inc.	1.94	0.00	0.0
RACO	6.38	1.75	Racotek Inc. (L)	1.88	-0.44	-18.9
RETX	9.25	3.38	Retix	4.19	-0.81	-16.3
SBC	62.25	46.00	SBC Communications	56.50	-4.88	-7.9
SFA	23.50	12.00	Scientific Atlanta Inc.	22.00	-0.75	-3.3
SHVA	72.75	8.25	Shiva Corp.	10.91	-0.97	-8.2
FON	52.75	34.50	Sprint Corp.	46.13	-3.94	-7.9
SMSC	15.25	8.25	Standard Microsystems Corp.	11.25	0.94	9.1
USW	39.44	27.25	U.S West Inc.	37.06	-1.00	-2.6
XIRC	31.13	7.50	Xircom	12.38	-0.06	-0.5
XYLN	59.38	12.38	Xylan Corp.	16.50	0.44	2.7
PCs and Workstations						**UP 5.70%**
AALR	15.50	6.88	Advanced Logic Research	15.38	-0.06	-0.4
AAPL	27.75	12.75	Apple Computer Inc. (L)	17.44	2.63	17.7
ASTA	6.38	3.94	AST Research Inc.	5.06	-0.09	-1.8
CPQ	133.75	44.25	Compaq Computer Corp. (H)	129.25	5.69	4.6
DELL	152.88	22.63	Dell Computer Corp. (H)	150.44	14.75	10.9
GTW	42.00	15.88	Gateway 2000 Inc. (H)	40.63	2.69	7.1
HWP	70.88	39.75	Hewlett Packard Co. (H)	65.06	4.13	6.8
MUEI	25.38	8.75	Micron International Inc.	19.06	0.25	1.3
NIPNY	74.00	49.88	NEC America	71.50	0.88	1.2
SGI	28.38	12.63	Silicon Graphics	17.69	-0.25	-1.4
SUNW	47.88	22.63	Sun Microsystems Inc. (H)	45.88	6.56	16.7
Large Systems						**UP 1.50%**
AMH	14.00	8.13	Amdahl Corp.	10.06	0.19	1.9
DGN	31.25	9.13	Data General Corp. (H)	28.50	0.06	0.2
DEC	42.88	25.00	Digital Equipment Corp.	37.63	-0.44	-1.1
IBM	103.75	44.63	IBM (H)	103.75	7.25	7.5
MDCD	9.75	2.88	Meridian Data Inc.	4.13	-0.25	-5.7
NETF	4.38	0.88	NetFrame	0.94	0.00	0.0
PRCM	20.13	9.00	ProCom Technology, Inc. (H)	11.06	0.63	6.0
SQNT	25.88	10.63	Sequent Computer Sys. (H)	25.88	2.38	10.1
TEXM	3.88	1.88	Sequoia Systems Inc.	2.88	-0.25	-8.0
SRA	56.75	16.63	Stratus Computer Inc. (H)	54.69	1.06	2.0
TDM	27.44	9.63	Tandem Computers Inc. (H)	26.56	1.31	5.2
UIS	8.63	5.38	Unisys Corp. (H)	8.50	0.00	0.0
Software						**UP 1.77%**
ADBE	49.00	29.63	Adobe Systems Inc.	37.25	0.88	2.4
AMSWA	8.75	3.75	American Software Inc.	7.38	-0.69	-8.5
APLX	40.00	3.13	Applix Inc.	6.88	-0.13	-1.8
ARSW	51.50	17.00	Arbor Software	37.00	2.50	7.2
ADSK	42.88	18.50	Autodesk Inc.	39.75	-2.00	-4.8
BGSS	32.50	19.75	BGS Systems Inc.	29.75	1.25	4.4
BMCS	62.38	26.63	BMC Software Inc. (H)	58.25	1.63	2.9
BOOL	27.50	14.00	Boole and Babbage	23.38	-1.13	-4.6
BORL	9.13	4.75	Borland Int'l Inc.	6.69	0.63	10.3
BOBJY	30.00	7.13	Business Objects	7.75	-0.50	-6.1
CAYN	6.25	2.44	Cayenne Software Inc. (L)	2.81	-0.13	-4.3
CNTR	5.88	1.13	Centura Software	1.75	-0.38	-17.6
CHKPF	36.25	13.63	Checkpoint Software Technologies	27.63	-1.00	-3.5
COGNF	39.50	18.50	Cognos Inc.	29.44	-2.19	-6.9
CA	67.88	37.25	Computer Associates	64.50	5.56	9.4
CVN	10.38	3.13	Computervision Corp.	3.94	-0.31	-7.4
CPWR	58.38	17.00	Compuware Corp. (H)	56.38	6.25	12.5
CSRE	29.25	10.75	Comshare Inc.	11.38	-0.38	-3.2
COSFF	10.75	5.00	Corel Corp.	5.81	-0.56	-8.8
DWTI	6.63	2.25	Datawave Technologies Inc. (L)	3.56	0.59	20.0
FILE	36.50	0.50	Filenet Corp.	18.50	-0.13	-0.7
FRTE	47.00	7.25	Forte Software	11.00	-0.13	-1.1
FTPS	9.50	3.88	FTP Software Inc. (L)	3.88	-0.75	-16.2
HUMCF	37.25	22.00	Hummingbird Comm. Ltd. (H)	36.50	10.63	41.1
HYSW	26.38	10.63	Hyperion Software Corp.	25.38	1.44	6.0
IRIC	16.38	11.00	Information Resources	14.50	-0.50	-3.3
IFMX	31.13	6.56	Informix Corp.	9.53	0.34	3.7
INGR	12.63	6.25	Intergraph Corp.	8.63	-0.06	-0.7
LEAF	5.13	0.81	Interleaf Inc.	2.19	0.19	9.4
ISLI	14.63	6.25	Intersolv Inc. (H)	13.13	3.13	31.3
INTU	41.50	20.88	Intuit Inc.	24.56	0.44	1.8
TLC	25.75	5.50	Learning Co. (The)	8.63	0.50	5.5
LGWX	12.38	4.13	Logic Works	6.63	-0.38	-5.4
MAPS	13.00	7.88	MapInfo Corp.	11.25	0.13	1.1
MATH	7.63	2.19	MathSoft	3.44	-0.19	-5.2
MCAF	78.50	30.63	McAfee Associates (H)	76.38	6.88	9.9
MENT	14.50	6.50	Mentor Graphics	8.69	-0.03	-0.4
MIFGY	33.38	9.75	Micro Focus (H)	28.00	-4.75	-14.5
MGXI	13.75	4.00	Micrografx Inc.	7.06	0.56	8.7
MSFT	150.75	54.75	Microsoft Corp. (H)	143.50	12.69	9.7
ORCL	59.00	31.63	Oracle Corp. (H)	56.00	3.50	6.7
PMTC	64.25	34.88	Parametric Technology	52.00	6.13	13.4
PARQ	5.50	0.88	ParcPlace Systems Inc.	1.06	-0.06	-5.6
PSFT	66.38	28.38	Peoplesoft (H)	62.50	1.00	1.6
PTEC	19.75	11.00	Phoenix Technologies	13.63	0.50	3.8
PSQL	13.75	6.19	Platinum Software	12.13	1.06	9.6
PLAT	17.88	9.38	Platinum Technology	14.88	1.69	12.8
PRGS	23.00	12.13	Progress Software Corp.	16.13	-0.38	-2.3
RNBO	22.13	13.75	Rainbow Technologies Inc.	18.13	-1.50	-7.6
REDB	30.00	5.00	Red Brick Systems Inc.	8.09	-0.16	-1.9
ROSS	9.75	1.75	Ross Systems, Inc.	3.75	-0.69	-15.5
SAPE	57.75	30.00	Sapient Corp. (H)	54.75	1.50	2.8
SCOC	8.63	3.13	SCO Inc.	4.63	0.16	3.5

Exch	52-Week High	52-Week Low	Range	July 18 2 PM	Wk Net Change	Wk Pct Change
SDTI	44.38	21.00	Security Dynamics Tech.	42.00	5.63	15.5
SOTA	18.88	8.88	State of the Art	12.50	0.25	2.0
SSW	78.88	27.25	Sterling Software Inc.	33.44	0.38	1.1
SDRC	28.75	16.75	Struct. Dynamics Research (H)	26.88	-1.00	-3.6
SYBS	21.13	12.13	Sybase Inc.	14.88	1.22	8.9
SYMC	22.19	8.75	Symantec Corp. (H)	20.81	0.72	3.6
SNPS	50.50	21.75	SynOpsys	30.00	-9.81	-24.6
SSAX	15.00	3.88	System Software Assoc.	8.94	1.75	24.3
SYSF	36.50	7.38	Systemsoft Corp.	10.25	-0.75	-6.8
TRUV	7.38	1.50	Truevision Corp.	2.00	0.19	10.3
VIEW	17.38	8.38	ViewLogic Systems (H)	14.88	0.13	0.8
VMRK	11.13	5.50	VMark Software Inc.	8.75	0.00	0.0
WALK	16.25	9.38	Walker Interactive Systems (H)	15.75	0.63	4.1
WALL	29.13	12.25	Wall Data Inc.	18.56	0.19	1.0
WANG	24.06	16.00	Wang Laboratories Inc.	22.75	0.63	2.8
Internet						**UP 3.53%**
AMZN	30.88	15.75	Amazon.com (H)	26.25	-2.38	-8.3
AOL	74.88	22.38	America On-Line (H)	64.88	-4.50	-6.5
ATHM	25.50	16.63	At Home Corp.	21.00	4.00	23.5
BBN	29.38	15.13	BBN Corp.	28.81	-0.06	-0.2
CSRV	14.75	8.63	Compuserve Corp.	11.63	-0.19	-1.6
EDFY	26.25	8.88	Edify Corp.	17.38	1.38	8.6
XCIT	21.63	5.00	Excite, Inc. (H)	17.50	1.44	8.9
SEEK	11.50	4.38	Infoseek Corp.	5.63	0.19	3.4
LCOS	22.75	5.75	Lycos Inc.	14.38	0.50	3.6
NETC	24.25	7.88	Netcom On-Line	14.00	0.50	3.7
NSCP	65.00	23.50	Netscape Comm. Corp.	44.63	5.44	13.9
OMKT	25.50	6.50	Open Market Inc.	12.00	1.06	9.7
PSIX	14.50	5.50	PSINet	8.13	-0.06	-0.8
QDEK	9.88	2.00	Quarterdeck Corp.	2.63	0.00	0.0
RAPT	25.75	8.88	Raptor Systems	11.00	-1.19	-9.7
SCUR	21.50	4.75	Secure Computing Corp.	6.38	0.72	12.7
SPYG	20.25	6.00	SpyGlass Inc.	7.75	-0.25	-3.1
YHOO	51.25	13.50	Yahoo! Inc. (H)	47.25	2.50	5.6
Semiconductors						**UP 5.72%**
AMD	48.50	10.25	Advanced Micro Devices	38.38	0.69	1.8
ADI	33.88	12.75	Analog Devices Inc. (H)	32.75	2.50	8.3
CHPS	26.50	7.88	Chips and Technologies	13.44	2.25	20.1
CRUS	24.25	8.00	Cirrus Logic	11.00	2.56	24.6
CY	16.94	9.13	Cypress Semiconductor Corp. (H)	14.81	-1.00	-6.3
CYRX	30.00	11.50	Cyrix	22.25	1.50	7.2
INTC	89.69	33.00	Intel Corp. (H)	87.00	11.00	14.5
LSCC	69.44	21.38	Lattice Semiconductor (H)	63.50	2.00	3.3
LSI	46.88	17.00	LSI Logic Corp.	12.31	-3.31	-9.3
MCRL	61.00	12.75	Micrel Semiconductor Inc. (H)	54.75	-2.25	-3.9
MU	49.94	16.63	Micron Technology (H)	46.25	2.31	5.3
MOT	90.50	44.13	Motorola Inc. (H)	85.81	0.69	0.8
NSM	37.56	13.00	National Semiconductor (H)	35.19	0.69	2.0
TXN	119.50	40.63	Texas Instruments (H)	114.88	18.13	18.7
VLSI	29.75	10.38	VLSI Technology (H)	28.22	2.22	8.5
XLNX	58.50	25.63	Xilinx	47.44	-2.63	-5.2
ZLG	29.50	14.88	Zilog Inc.	22.63	1.50	7.1
Peripherals and Subsystems						**UP 3.54%**
ADPT	46.88	17.50	Adaptec Inc.	41.75	1.09	2.7
APCC	31.50	8.81	American Power Conversion	23.00	1.56	7.3
CBEXC	5.31	0.97	Cambex Corp.	1.16	-0.41	-26.0
CREAF	23.38	3.50	Creative Technology Ltd. (H)	21.63	2.25	11.6
RACE	24.50	5.00	Data Race Inc.	10.38	-0.81	-7.3
DTM	12.50	5.75	Dataram Corp.	10.38	0.06	0.6
EMC	48.69	17.63	EMC Corp. (H)	45.94	0.00	0.0
EMLX	21.25	12.88	Emulex Corp.	14.75	0.00	0.0
ESCC	29.75	19.50	Evans and Sutherland	20.50	1.25	4.6
EXBT	17.50	9.50	Exabyte	12.50	-1.06	-7.8
ISLF	2.63	1.25	Intelligent Info. Systems	1.31	0.00	0.0
IOM	29.00	12.63	Iomega Corp.	24.56	4.19	20.6
IPLS	3.38	0.94	IPL Systems Inc.	1.31	-0.03	-2.3
KMAG	36.75	15.31	Komag Inc.	18.75	0.75	4.2
MTSI	29.75	12.88	Micro Touch Systems Inc.	27.13	2.00	8.0
MTIC	5.13	1.69	MTI Technology Corp. (H)	4.94	0.38	8.2
PNCL	8.75	0.59	Pinnacle Micro Inc.	0.69	0.00	0.0
AQM	6.38	2.38	QMS Inc.	2.75	-0.19	-6.4
QNTM	28.00	5.50	Quantum Corp. (H)	26.31	2.44	10.2
RDUS	2.56	0.19	Radius Inc.	0.34	0.09	37.5
SEG	56.25	18.75	Seagate Technology	39.25	1.25	3.3
SOS	19.63	9.75	Storage Computer Corp. (H)	11.75	0.88	8.0
STK	54.38	30.00	Storage Technology	52.50	3.38	6.9
TEK	65.25	36.88	Tektronix Inc. (H)	63.94	2.06	3.3
WDC	44.50	10.63	Western Digital Corp. (H)	38.94	3.69	10.5
XRX	84.00	44.63	Xerox Corp. (H)	78.81	-4.56	-5.5
Services						**UP 1.85%**
AMSY	37.13	15.75	American Mgmt. Systems	25.63	0.75	3.0
ANLY	39.00	17.50	Analysts Int'l (H)	37.75	4.88	14.8
AUD	50.25	37.25	Auto Data Processing (H)	49.06	0.63	1.3
BDMI	30.75	19.75	BDM International Inc.	22.63	0.63	2.8
CATP	37.75	21.25	Cambridge Tech. Partners (H)	36.00	-0.50	-1.4
CEN	53.13	29.50	Ceridian Corp.	39.75	-1.63	-3.9
CDO	29.44	15.13	Comdisco Inc. (H)	28.19	-0.88	-3.0
CPU	30.88	13.25	CompUSA Inc.	25.38	-0.13	-0.5
CHRZ	45.63	11.13	Computer Horizons (H)	43.25	1.25	3.0
CSC	86.50	57.88	Computer Sciences	75.25	1.00	1.3
TSK	45.88	11.88	Computer Task Group (H)	42.25	5.25	14.2
CDAT	28.63	12.75	Control Data Systems Inc.	20.25	-0.19	-0.9
EGGS	10.63	3.63	Egghead Discount Software	4.69	0.56	13.6
EDS	63.38	31.75	Electronic Data Systems Corp.	45.38	2.50	5.8
INAC	40.63	18.00	Inacom Corp.	34.00	0.50	1.5
INEL	10.75	2.25	Intelligent Electronics	2.69	-0.13	-4.4
KEA	70.00	16.63	Keane Inc. (H)	64.88	0.19	0.3
MICA	25.00	12.25	Micro Age Inc.	21.88	0.00	0.0
PAYX	42.50	25.63	Paychex	40.13	0.13	0.3
PMS	54.00	33.13	Policy Management Sys.	50.19	1.94	4.0
REY	30.63	13.75	Reynolds and Reynolds	17.69	0.88	5.2
SCBI	27.00	14.50	SCB Computer Tech. Inc. (H)	24.50	-1.50	-5.8
SEIC	28.00	17.75	SEI Corp. (H)	25.88	-1.88	-6.8
SMED	61.75	36.75	Shared Medical Systems	57.31	1.19	2.1
SSPE	33.50	10.00	Software Spectrum Inc.	13.25	1.13	9.3
SDS	52.63	36.00	Sungard Data Systems (H)	51.94	2.44	4.9
VST	29.75	6.50	VanStar Corp.	13.13	-1.63	-11.0

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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Stick to basics when going online

▸ It's better to take care of existing business before wooing new customers

By Mitch Wagner

BUSINESSES GOING online say the best strategy is to focus on core competencies and existing business partners rather than new customers.

"We're increasing our share of business by making it easier for existing customers to do business with us. Recruiting new customers is a little way down the list," said Tom Hoffmann, manager of Internet services at United Parcel Service of America, Inc.

INTERNET WORLD/ SUMMER '97

The Atlanta company maintains a package-tracking service online. Hoffmann noted that for the service to be useful, a customer needs to already have a business relationship with UPS — he needs to have shipped a package or be expecting one.

Although the package-tracking application can serve as a lure for new customers, it was established to keep existing customers happy, Hoffmann said.

"The best uses of the Web are in helping existing customers, as opposed to saying this is a completely new business," said David Marshak, an analyst at Boston-based Patricia Seybold Group, which is hosting a workshop on electronic commerce at Internet World/Summer '97 in Chicago this week.

"You are in the same business with the same customers and other business partners. You try to solidify business with those first, then expand markets geographically and geometrically," he said.

All companies, whether consumer-oriented or business-to-business, need to take a first-things-first approach to Internet commerce. That means first using the Internet to cement existing business partnerships and then, after a company is more Internet-savvy, embarking on the more complicated task of using the Internet to drum up business.

The cost-justification for Internet projects at first should be reduced business costs and increased customer loyalty, Marshak said.

Phil Gibson, director of interactive marketing at National Semiconductor Corp. in Santa Clara, Calif., said his company uses the Internet to keep in touch with engineers at other companies that are customers for National Semiconductor's electronic components.

"The Internet can much more deeply penetrate our existing customer base," Gibson said. Rather than keep in touch with one engineer at each company, the Internet lets National Semiconductor supply information to many engineers at each company.

National Semiconductor's Internet site gets about 20,000 visits per day from engineers. That compares with the company's customer call center, which handles 25,000 calls per month, Gibson said.

David Rice, manager of supply programs support at BASF Corp. in Mount Olive, N.J., said his company isn't interested in recruiting suppliers online. One reason is that BASF doesn't want to recruit suppliers at all.

TRIMMING VENDORS

"We have an overall project in purchasing and in supply-chain management of driving the number of vendors down," Rice said.

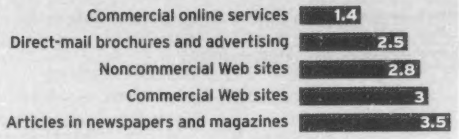
Even if BASF were interested in finding new suppliers, going online wouldn't be the way to do it, Rice said.

"You can run a search on Yahoo and say 'valves' or 'electronic components,' and you might find a lot of companies you don't know about. But that's not very efficient," he said.

But conducting business online is important for the supplier relationships that BASF wants to maintain, Rice said. Getting information online is often cheaper, faster and more convenient for both sides than using other channels. □

SHOPPING INFORMATION

On a scale from one to five (where one is low and five is high), what information channels were most important to you when making purchasing decisions:



Base: 4,000 Internet users

Source: The Graphics, Visualization and Usability Center of the Georgia Institute of Technology, Atlanta

IBM deepens NC commitment

CONTINUED FROM PAGE 1

The Series 300, priced at $799, will feature a 66-MHz Power PC processor to provide more processing power to users who run intranet- and Internet-based applications. It will be bundled with Netscape Communications Corp.'s Navio browser and a custom version of Spyglass, Inc.'s namesake browser aimed at devices such as network computers, Internet-enabled telephones and embedded World Wide Web servers for electronic devices, according to the sources.

The Series 1000 is aimed at Java users and will feature processors that range from 100 to 300 MHz. It will cost $1,099 and is scheduled to ship in the fourth quarter. Its arrival may be well-timed; Sun Microsystems, Inc. plans to release its HotSpot software around the same time. HotSpot was designed to speed up Java's recompiling ability to run as fast as, or faster than, native code (see related story, page 10).

IT'S LEGIT

A Java-based network computer from IBM could add an air of legitimacy to Java, said Frank Manci, network technical manager at Colonial Savings FA in Fort Worth, Texas.

"That's the kind of thing that will make Java ready for prime time," said Manci, who has reconsidered his initial hesitancy about network computers.

"If you get a reliable platform out there that will make Java get up and scoot, that will change things. If Java becomes viewed as a reliable platform, it will be very difficult to knock it off," he said

"What IBM is doing here makes a lot of sense," said Neil MacDonald, research director at Gartner Group, Inc., who was briefed. "They're giving users a spectrum of devices to choose from depending on what type of work they're doing."

LOWER COSTS, NOT PRICE

The price of the Network Station isn't drastically less than a low-end PC, MacDonald said, but the significant reduction in support and administrative costs will make the product attractive to businesses.

But not everyone is enthusiastic. The assistant vice president at a major U.S. bank said network computers won't make IS managers' lives easier. They'll simply add one more headache to the mix.

"I hope IBM loses their pants on this," said the bank executive, who asked to go unnamed. "Network computers are just another fragmentation of the market. Now companies will have little pockets of these machines to support, and they'll never be anything but boat anchors." □

Joining the madding crowd

IBM's Network Station is competing with offerings from Sun, NCD, Inc., Oracle Corp., HDS Network Systems, Inc. and others, all of which have boxes shipping as well.

John MacGilvary, an analyst at Datapro Information Services, Inc. in Delran, N.J., said there may be some initial confusion among users as to which Network Station to purchase, but IBM's overall strategy is sound.

"[Users] are just going to have to think about what type of work they want to do and plan ahead," he said.

Gartner Group projects that IBM will ship about 500,000 Network Stations over the next two years and describes the company's network computer as "very significant" to the overall market.

"They understand the need to provide bundled term emulation, application access for legacy and Windows applications, as well as local Java processing and local browser capabilities," Gartner's Neil MacDonald said. — April Jacobs

Intranet unites 50,000 documents

The Ernst & Young LLP business consultancy plans to announce this week that it is using Verity, Inc.'s search-and-retrieval software to unite 50,000 documents on a worldwide intranet.

Ernst & Young in New York selected the software from Verity in Mountain View, Calif., because of its ability to read information from many data sources and file types and its scalability.

Following are Internet World/Summer '97 announcements:

- **Oracle Corp. plans to announce a new proxy server for World Wide Web-based applications and new personalization tools.**
- **SCO, Inc. in Santa Cruz, Calif., plans to introduce a version of the Netscape Communications Corp. electronic-mail server for use on SCO's PC version of Unix.**
- **Bluestone Software, Inc. in Mount Laurel, N.J., will introduce Sapphire/Web 4.0, a software product for connecting Internet applications to back-end databases.**

— Mitch Wagner

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COMMENTARY

Apple: Is this a job for Jobs . . .

David Coursey

There was hope, for the briefest of moments, that we might make it through the summer without another Apple column. You have told me in your E-mail, dear reader, that Apple isn't as interesting wherever you happen to call home as it is on tony University Avenue in Palo Alto, Calif.

There, the abrupt end to Gil Amelio's much-heralded "three-year plan" to save Apple was all the talk at Starbucks and the swank Italian bakery down the street.

In a newspaper article I read, Amelio claimed to have completed 80% or 90% of his plan and said it's time for him to get on with his life. My understanding is that Gil also claims to have created the heavens and the Earth, although those quotes didn't make it into print.

During his brief tenure at Apple, Amelio managed to build quite a reputation. There's Gil, in that funny shirt without a proper collar, dragging his Macworld speech out to a mind-numbing three hours. The satellite that delivered his words to Apple sites around the country was contracted for only 90 minutes and cut off the proceedings mid-sentence.

And there's Gil, telling a reporter about a four-point program he had and forgetting the second point.

And there's Gil, early in his tenure, telling me that Apple would make money by selling technologies to other companies — as if that hadn't been tried, mostly without success, for the better part of a decade.

If you think Amelio is the Gerald Ford of corporate America, you've got a reasonable image: Nice guy, fairly smart, just can't help seeming like a bit of a dolt. Of course, he's the one walking away with the big severance package, so who am I to talk?

To Amelio's credit, he led Apple to significant improvement. The company is better off today — far better off — than it was when he arrived. But of course, any outsider would have looked at Apple's spending and seen that something had to give. The layoffs and cost-cutting have savaged Apple and, for now, saved it.

What Amelio's tenure will be remembered for — and this was circumstance rather than part of his grand plan — is the $400 million Apple spent last year to be acquired by Steve Jobs and Next Software. It wasn't explained that way, but the Next people have pushed aside the native Apple population and seem to be running the place.

It's as likely as not that Jobs will be anointed King of Apple and returned to the throne he left more than a decade ago.

It's also possible that Apple will install a milquetoast as CEO, and Jobs will run the company from the shadows — as he appears to be doing today. It's less likely that Jobs will be tossed in favor of someone who might be able to do the job.

Any scenario with Jobs in charge is a recipe for failure. Nothing about his experience at Next or Pixar has prepared him to run Apple. And Jobs has torqued so many people over the years, it's tough to imagine that he'll get lots of outside cooperation at Apple. Most of his CEO peers would probably take an extended wait-and-see attitude toward Mr. Jobs. Silicon Valley just doesn't trust the guy.

But there's a certain charm in Jobs returning to the helm at Apple.

Just think — he'd be the first person in the history of American enterprise to give birth to a Fortune 500 company and then be intimately involved in killing it, all in the space of about two decades. □

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. . . or is it time for unconventional wisdom?

Frank Hayes

Conventional wisdom can be a dangerous thing. If you don't think so, consider the sad case of Apple.

It's usually a week — sometimes more — between the time I write this column and the time you read it. So by now, Apple may already have named a new CEO — or found a white knight to buy the company.

That's unlikely, though. In this "fast moving" business, it still takes years to field new products — and weeks or months to find a new strategy or CEO.

That's one of Apple's biggest problems: its inability to respond quickly to changing business realities. Lots of pundits blame Apple's current free fall on that inability. It's the conventional wisdom.

A HISTORY LESSON

Of course, Apple isn't the only company that fails to deliver new products and technologies on time. Microsoft, Netscape, Sun, IBM — just about the whole packaged software business, and most hardware vendors, too — seem to have acquired the two-year backlog that was a hallmark of IS for decades.

Then there's the conventional wisdom about who should run Apple next. Someone who knows technology, the pundits agree, who can scale down Apple to be a niche player, break it up into parts and give up on competing with Microsoft.

All that sounds exactly like what pundits said four years ago, when IBM was the company in crisis. Look it up for yourself — all that punditry is quoted in the March 8, 1993, issue of *Computerworld*.

And who did IBM hire? Cookie-man Lou Gerstner — a nontechnologist who didn't scale down IBM or break it up, and who still competes against Microsoft by making network computers, Java and "enterprise servers" — and a nice profit, too.

Meanwhile, that advice to hire a technologist, downsize and quit competing hasn't helped Novell or Borland.

Or, for that matter, Apple.

So what *should* Apple do? Maybe take a cue from the IS shops that have lost so much faith in Apple over the past few years. Companies don't hire techies as CIOs these days. They hire businesspeople who take a high-level view of technology. That way — in theory, at least — they'll take care of business instead of falling in love with either existing systems or technical fads.

Some IS shops are shedding staff, but they aren't shrinking their scope. IS doesn't do niche stuff that only matters in some obscure organizational corner.

IS plays right at the corporate core, where transactions and communication make business possible.

Every IS shop knows the misery of an installed user base that hates change and the frustration of new technologies that blast by too fast to master. But any corporate IS shop that hadn't successfully delivered a major new system since 1984 would be a laughingstock.

Every IS shop also knows that staffers who won't work on the team are cripplers — and those who intentionally sabotage projects are killers.

Most of all, IS shops know there's no way to dodge the really hard problems. There are no panaceas, no automatic solutions — not from PCs, outsourcing, client/server, enterprise packages, intranets or any other buzzword. Conventional wisdom and IT fads are no replacement for figuring out what users and the organization need and delivering it.

Anyone believe Apple can learn those lessons, too?

Yo, Apple, how about hiring a business CEO who listens to customers and isn't afraid to deliver what they ask for — not just what's comfortable or convenient for Apple to offer?

Or you could hire a technologist to pare Apple down, slice it up and bake it into a niche player.

But if you buy in to that conventional wisdom, you can be pretty sure you're kissing your Apple goodbye. □

Hayes is Computerworld*'s staff columnist. His Internet address is frank_hayes@cw.com.*

The Back Page

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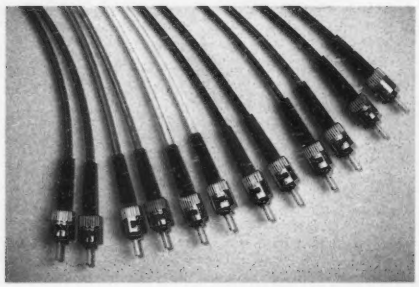
Dispatches & images from the fringes of the electronic frontier

News to ponder

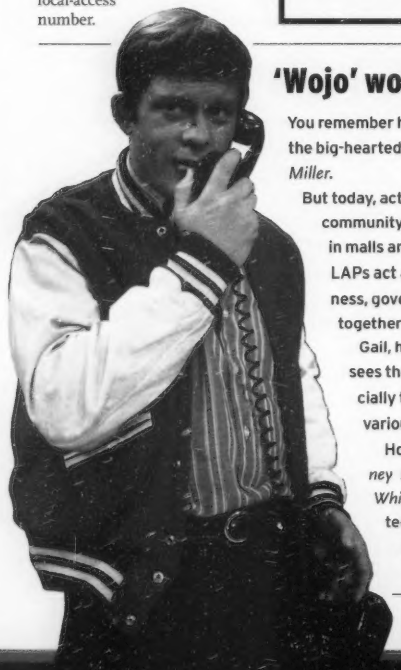
Rhode Island Software Systems — known for its popular "Hey, Macaroni!" screen saver [CW, Nov. 4] — has struck again. Inspired by the recent ear-munching by boxer Mike Tyson, the Woonsocket, R.I., software company has come out with "Mikey Likes Ears" and "Holyear vs. Teethson" screen savers. The company reports 15,000 downloads per day from *www.risoftsystems.com.*

Everywhere you look, someone is selling prepaid telephone cards. Now Auric Web Systems in Pasadena, Calif., *(www.auricweb.com)* is offering prepaid Internet access cards for U.S. business travelers. The Internet cards — already used in Japan — have a nationwide, toll-free dial-up number and password. They allow business travelers to access the Internet from anywhere, without having to hunt for an Internet service provider's local-access number.



COLOR-CODED PATCH PANELS

Color coding of copper wire assemblies is common, but all those fiber-optic cables look alike. So Computer Systems Products in Plymouth, Minn., provides six colors of fiber-optic patch cables so network managers can easily identify different buildings or specific connections. The coding can ease troubleshooting and can reduce the chance of disconnecting the wrong circuit.



'Wojo' works high-tech mojo

You remember him as Detective Stanley "Wojo" Wojohowicz, the big-hearted, slow-witted cop on the 1970s sitcom *Barney Miller.*

But today, actor Max Gail, 54, is working to set up networked community centers – called Local Access Places (LAP) – in malls and other public places (see *www.lap.org*). The LAPs act as village centers where people from the business, government and entertainment fields can work together to improve the community.

Gail, head of Full Circle Productions in Malibu, Calif., sees the Internet as a means to link the LAPs, especially to provide citizens with one-stop access to various government, education and health services.

How did "Wojo" go high-tech? After leaving *Barney Miller* in 1982, Gail starred in the short-lived *Whiz Kids* series, in which he played a mentor of tech-savvy school kids. That sparked his interest in computers, multimedia and, eventually, the Internet. – Mitch Wagner

Inside Lines

A rose by any other name ...

As head of Microsoft's Personal and Business Systems group, Senior Vice President Jim Allchin is one of the top-ranking executives at the Redmond, Wash., software giant. But that didn't stop Allchin's colleagues from bestowing another — less formal — epithet on the group. "Internally, we call it 'The Peanut Butter and Jelly Sandwich Group,' said one executive who requested anonymity. "Not only do the initials match up, but Allchin keeps us here so late that a few of us now keep jars of peanut butter and jelly on hand for our dinner."

Chemistry lessons from Mr. McNealy

Sun Microsystems CEO Scott McNealy took the obligatory potshots at Microsoft during his speech at CA-World '97 in New Orleans last week. Touting the Java environment as virusfree, he dubbed Windows "the petri dish of choice on the Internet." He called huge Windows applications "hairballs" and ever-faster Intel-based computers "hairball accelerators." On Java purity, McNealy offered this chemistry lesson: "If I add three drops of Java to Windows, it's still poison, not Java; and if I add three drops of poison to Java, it's now poison, too."

Plug-pulling or job-shifting?

McNealy also demonstrated how he now runs the company from a JavaStation and said the evolution toward that began when Sun pulled the plug on mainframes. But attendees from Computer Associates said they know otherwise — that Sun really time-shared those functions. And they ought to know, because CA holds the mainframe licenses.

Speaking of Sun ...

The company may be spinning off a new planet. Sources close to the Mountain View, Calif.-based company said it's about to form a new operating unit, much like JavaSoft and SunSoft. The unit, which is an outgrowth of Sun labs, will focus on Java testing tools.

Borland bolsters bottom line

Borland International at its user conference in Nashville last week tried to assure customers that it is heading toward firmer financial ground. Chairman and CEO Del Yocam announced that outside investors had agreed to pour in some cash to support the bottom line. One user responded with this bit of Tennessee wisdom: "That's like selling the pigs to keep the farm running."

Out of the frying pan, back in the frying pan?

Yocam spent a lot of time fending off questions on whether he would leave to take the helm of listing Apple. Former Apple CEO John Sculley started the rumor mill grinding by saying Apple needed alum Yocam back. Noting that he hadn't been called by anyone at Apple, Yocam said he's simply not interested. Maybe he's too busy manning the bucket at Borland to think about bailing out Apple.

HP sends mixed messages on OpenView

Hewlett-Packard made some puzzling moves last week. First, HP officials endorsed a competitor's product, CA's Unicenter TNG, by announcing that HP will ship TNG framework components with HP 9000s and HP NetServers. HP's own OpenView management software competes with Unicenter. Then HP's tools division announced plans to bundle custom versions of OpenView with the same HP servers and models from partner Dell Computer. For spin control, HP CEO Lew Platt issued companywide voice mail that assured the troops OpenView really is HP's strategic management platform.

High-tech research firm Business Research Group in Newton, Mass., recently sent a letter to recipients of its numerous press releases and announcements apologizing for sending numerous press releases and announcements. Of course, it sent numerous apology letters to apologize for the numerous press releases and announcements. Uncle! If you have numerous news tips, or even one for that matter, send it to news editor Patricia Keefe at (508) 820-8183 or patricia_keefe@cw.com.

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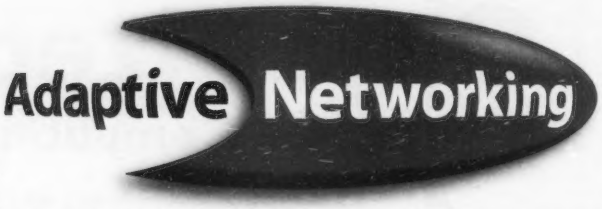
HERE'S THE ANSWER. WHAT'S THE QUESTION?

Since the way you use your network has changed dramatically, now is an excellent time to question its conventional design. Put simply, your rigid system isn't equipped to handle the fluid movement of intranet traffic, Internet access, and new applications that take advantage of both. Enter Adaptive Networking.



Q • ALL RIGHT, WHAT IS IT?

Adaptive Networking is a set of products and cornerstone technologies that transition today's networks to the IP-optimized networks of tomorrow. The aim of Adaptive Networking is to build networks that are invisible to users, worry-free for network managers, and strategic for the business.

Q • WHAT DOES IT OFFER?

Our philosophy is centered around more services with less complexity. How? Through transparent scalable technologies that ensure long-term, non-disruptive network evolution; drive operational productivity at every level of the organization; and adapt to changes in network usage and business requirements.

Q • WHAT ARE THOSE SCALABLE TECHNOLOGIES?

Bay Networks products are being developed around industry-leading cornerstone technologies: Access, Switching, IP Services, and Network Management.

Q • WHAT ABOUT RELIABILITY?

When your network goes down, so does productivity. Not to worry. Adaptive networks are inherently more reliable and scalable thanks to symmetric multiprocessing and a distributed architecture. In other words, there's no single point of failure to bring down your network. Moreover, the system automatically reroutes traffic as needed to avoid bottlenecks. And you can easily add to, change, and modify your network without disrupting users.

Q • HOW CAN I REDUCE NETWORK OWNERSHIP COSTS?

Adaptive networks automatically find and configure new devices to save your IT staff considerable time. And thanks to our Autosensing Technology, the system determines which users have 10Mbps or 100Mbps capabilities, for example, and matches them with the bandwidth they need.

Q • HOW CAN WE AVOID SURPRISES?

With Optivity®, your IT staff can proactively manage all the devices in your network as one cohesive system—even if it extends across the Internet. Optivity also provides the powerful ability to visualize and analyze real-time traffic flow across your entire network. Intelligent agents monitor your network infrastructure, keeping your IT staff informed of changing conditions and often making adjustments as needed. What's more, Optivity includes analytical tools for capacity planning to help reduce budget surprises.

Q • WILL IT WORK WITH WHAT I'VE ALREADY GOT?

Of course. It wouldn't be truly adaptive if it didn't. You can adopt this technology at your own pace in cost-justifiable increments. Adaptive Networking even makes our competitors' products smarter and faster. Good news, since you probably already own some.

Q • CAN IT GIVE MY BUSINESS A COMPETITIVE EDGE?

Definitely. You can offer hot, new services and build closer links with customers and business partners. Should they need access to your corporate network from the Internet, you can offer secure virtual private network connections. Want to add voice-over-IP capabilities to link customers and service representatives from your Web site and reduce long-distance phone costs? Adaptive networks can do this and much more.

Q • WILL IT WORK WITH THE LATEST APPLICATIONS?

Applications drive your network needs. That's why adaptive networks shift on the fly to match routing priorities to your applications. For example, financial transactions and video conferencing can take routing priority over e-mail packets and Web browsing.

ANY QUESTIONS?

If your network can't do all of this, it's time to start asking a few questions of your own. For a free strategy paper, visit www.baynetworks.com/adapt/a3 or call 1-800-8-BAYNET ext. 294. Adaptive Networking is exactly what your business needs. Without question.

Bay Networks

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